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Part 1 of 2



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.,

CORRESPONDENT OF THE PALEONTOLOGICAL SOCIETY (U.S.A.);  
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The Original descriptions reprinted, and illustrated by figures of the types,  
reproduced from photographs mainly by

J. W. TUTCHER

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AUTHOR OF

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## Part I

Pages i—xii, *i—ii*

12 Plates, and Descriptions Nos. 1—8

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## [INTRODUCTION

## BIBLIOGRAPHIC DETAILS

In the early days of Geology four authorities dealt with the Jurassic fossils of Yorkshire : Young & Bird, John Phillips, and Martin Simpson. They named a large number of species, but their task was inadequately performed : Young & Bird described their species very shortly, giving poor figures of a portion only ; Phillips issued mere sketches, and gave no descriptions ; while Simpson furnished good descriptions, but gave no figures.

Phillips' types are lost, stolen in London from the coaching inn : perhaps they lie at the bottom of the Thames. However, the majority of the types of Young & Bird, and of Simpson, are contained in Whitby Museum, with which Young, Bird, and Simpson were connected ; the specimens are, for the most part, readily identifiable from the Museum registers, as well as from other indications. They form a fine collection : there will be, perhaps, 150 or more species ; and in regard to the majority of them, authors, both British and foreign, have failed to interpret the Yorkshire writers correctly, which is not surprising.

The works of Young & Bird, though well enough known, are procurable only with some difficulty ; the works of Martin Simpson are very little known outside of his native county, and are almost unprocurable. His "*Monograph of Lias Ammonites*," (London, 1843) is extremely rare ; and his "*Fossils of the Yorkshire Lias*" (London, 1855), is very scarce. Yet these modest works are more important than those of the other authors so far as Ammonites are concerned : they contain careful and discriminative studies of many species ; and their worth has not yet received due recognition. Without full illustration of Simpson's types it is almost impossible to obtain due knowledge of Lias Ammonites, and certainly dangerous to describe or name species as new. For the statement advanced by certain geologists, that descriptions without figures give no claim to priority of nomenclature, is not admitted by zoologists. If it were allowed to exclude the unfigured species of Young & Bird, and of Simpson, it would also have to be applied to exclude many of those of Linné, Bruguière, Lamarck, Schlotheim, and others, which, however, have been generally accepted.

The publishers of the present work, therefore, consider that the reproduction of these types by photographic process, with reprints of the original descriptions, especially those of Simpson, will render an important service to palæontology ; and they hope that it will meet with the necessary encouragement.

Mr. T. Newbitt, F.G.S., Curator of the Whitby Museum, has been, and is, kindly investigating the types, and the Council of the Museum has consented to their being placed, for the purposes of this publication, in charge of the Editor, who has, fortunately, as collaborator for the photographic work, Mr. J. W. Tutchter : his remarkable results are widely known.



Of the volumes to be edited a few details may be given. The title-page of YOUNG & BIRD's first work reads :—

A Geological Survey of the Yorkshire Coast : describing the strata and fossils occurring between the Humber and the Tees, from the German Ocean to the plain of York : Illustrated with numerous Engravings : by the Rev. GEORGE YOUNG, A.M., and JOHN BIRD, Artist. Whitby. 1822. This will be quoted as "YOUNG & BIRD, 1822." The title-page of their 2nd Edition, 1828, is practically the same : it will be quoted as "YOUNG & BIRD, 1828." There are numerous discrepancies between the two editions—particularly through alteration in the names of species.

The title-page of the 2nd edition states that JOHN BIRD was then Curator of the Whitby Museum.

The title-page of SIMPSON's first work reads thus :—A Monograph of the Ammonites of the Yorkshire Lias ; containing the specific characters and popular notices of more than 100 species ; with references to the particular beds and localities where each is to be found ; including, also, the two species of nautilus. Described from Nature, by MARTIN SIMPSON, Curator to the Geological and Polytechnic Society of the West Riding of Yorkshire and late keeper of the Whitby Museum, Lecturer on Geology, etc. London : Simpkin, Marshall and Co., and all Booksellers. 1843.

The preface is dated February, 1843 ; and the authorities of the British Museum kindly give the information that their copy was received July 8th, 1843. Publication may have preceded this date by some time, but even this date will give SIMPSON's species priority over all of D'ORBIGNY's (*Terr. Jur.*, *Céph.* ; *Pal. Franç. I.*) after p. 192 (1844), and probably after p. 144 (second issue in 1843).

This work of the Yorkshire author will be referred to as "SIMPSON, 1843."

The title-page of SIMPSON's next work is :—The Fossils of the Yorkshire Lias ; Described from Nature. With a short outline of the Geology of the Yorkshire Coast. Illustrated with sections ; and intended as a Guide to Strangers. By M. SIMPSON, Lecturer on Natural Science, and Curator of Museums. London : Whittaker and Co., Ave Maria Lane. Whitby : Silvester Reed. 1855.

This work will be quoted as "SIMPSON, 1855." There is no copy in the British Museum, nor in the Bodleian Library, Oxford, so that a more exact date of publication is not known. The work is, however, not so difficult to procure as the 1843 publication.

A second edition of this work was published nearly thirty years later. Its title-page reads :—The fossils of the Yorkshire Lias, described from Nature, with a carefully-measured section of the strata, and the fossils peculiar to each. By MARTIN SIMPSON, Lecturer on Natural Science, and Curator of the Whitby Museum ; Author of a Guide to the Geology of Yorkshire. Second Edition. Whitby : Printed by Forth and Son, Flowergate. Sold at the Museum. London : John Wheldon, Natural History Bookseller, 58, Great Queen Street, Lincoln's Inn Fields, 1884.

This work will be quoted as "SIMPSON, 1884." It is easily obtainable : and therefore the section of the strata which he gives will be used as a basis for fixing the position of species (see below, p. xvi.)



MARTIN SIMPSON was "born 20th November, 1798, and he died 31st December, 1892."<sup>1</sup> He acted for many years as Curator of the Whitby Museum, and "in 1860 the Council granted him the . . . remuneration of £10 per annum, which he received till his death."<sup>1</sup> He was no arm-chair palæontologist: his practical field acquaintance with the strata and fossils of the Yorkshire Lias was obviously most intimate (1884, vi); and his knowledge of the horizons from which species were obtained must have been extensive: he has recorded many useful data.

This intimate field-knowledge, coupled with a keen eye for differences of shape, led him—at any rate in the case of the Ammonites—to make many more species than his contemporaries would admit; and partly to this tendency may be attributed his failure to receive assistance for the publication of his works with due illustrations.

This deficiency it is now hoped to supply; and the figuring of the types of SIMPSON'S Ammonite-species may furnish evidence necessary for judgment as to whether his views were correct. It is expected to show that his specific nomenclature is justifiable on the whole—that he was, in fact, unfortunately for himself, far in advance of his time.

Though he was so favourable to giving many names to species, he was the opposite in regard to genera (1884, 3). This, perhaps, explains the attitude that he adopted towards the pioneer in naming Ammonite genera—ALPHEUS HYATT—when he visited Whitby Museum.<sup>2</sup>

In regard to the present edition of the Yorkshire authors, a few remarks may be necessary.

The original descriptions will be given in full; but no promise can yet be made about the reproduction of the original figures.

Editorial comments will be as abbreviated as possible. Some discussion in regard to the application of generic names, especially where genotypes are doubtful, and some new generic appellations are unavoidable. The former will be as short as possible, and the latter as few as the necessities of the case require: it is well, however, to remember that more efficient work can be produced with sufficient tools than with too few.

After the descriptive matter is a list of species comparable with the subject—generally on the right-hand page, with room for manuscript additions, since the list does not pretend to be exhaustive. Cited species may, or may not, belong to the same genus as the subject.

Dates are given carefully to show whether priority belongs to the cited species or the subject. Authorities for dates of some works issued in parts are:—

E. RENEVIER, Dates publ.; Bull. Soc. Vaud. Sci. Nat., 1855—for the SOWERBYS' Mineral Conchology: a rare pamphlet, very kindly lent by Mr. C. D. Sherborn, F.G.S.

C. D. SHERBORN, Dates Pal. Franç.; Geol. Mag. (4) VI, 1899, 223,—for D'ORBIGNY'S Céph., Terr. Jur., Pal. Franç.

G. C. CRICK, *Am. calcar*; Geol. Mag. (4) VI, 1899, 554,—for ZIETEN'S Verst. Würt.

In the citations of comparable species references cannot be given in full, but a bibliography is for the future: meanwhile, memoirs

<sup>1</sup> C.D.S., obituary notice, Geol. Mag. (3) X, p. 144, 1893.

<sup>2</sup> Genesis Arietidae; Smithsonian Contrib. Knowl. 673, 1889, p. 170.



and papers are readily identifiable from works on Ammonites and from books of reference.

In citations a comma between the trivial name and the author indicates the author as the giver of the name at the time; but a semi-colon, that the author is quoting his own or another writer's previously given trivial name. Thus, *A. bisulcatus*, Bruguière, and *A. bisulcatus*; d'Orbigny; *A. pettos*, Quenstedt, 1849; but *A. pettos*; Quenstedt, 1883.

### TERMINOLOGY

Technical terms are necessary, but difficult to remember. Therefore a few that are important will be chronicled below, with explanations purposely as abbreviated as possible.<sup>1</sup> Necessary new terms are marked by **broad face type**.

#### BIOLOGICAL TERMS

##### GROWTH STAGES :—

<i>Embryonic</i>	
<i>Nepionic</i>	larval, or young.
<i>Neanic</i>	adolescent.
<i>Ephebic</i>	adult.
<i>Gerontic</i>	senile.

These terms refer to the individual development, *ontogeny*; by the addition of *phylo-* they denote racial development, *phylogeny*.

##### STRUCTURAL STAGES :—

<i>Anaplasis</i>	building up	} of the whole structure.
<i>Metaplasis</i>	completion	
<i>Paraplasis</i>	decline	

The building up takes place during the first three growth stages, the completion is accomplished in the ephebic, and the decline happens in the gerontic stage.

<i>Anagenesis</i>	elaboration	} of characters.
<i>Catagenesis</i>	simplification	
Or,		
<i>Anagenesis</i>	aggradational	} development of characters.
<i>Catagenesis</i>	degradational	

#### BIOGENETIC TERMS

##### *Tachygenesis*

Earlier inheritance of characters: hence the characters of adult A will be those of adolescent B, its descendant, and so on:—hence, adult A is the morphic prefiguration of adolescent B, and the latter the m. representation of adult A.

<sup>1</sup> For further terms, definitions, and literature, see HYATT, Phyl. Acq. Char.; Proc. Am. Phil. Soc. xxxii, 1894, 349; Id., Ceph. in Eastman trans. Zittel, Text-book Pal. I, 1900, 502; BUCKMAN, Mon. Amm. 1898, Sup. p. i.





## APOTYPES—Supplementary types.

These are types for descriptions later than the original one.

## ICOTYPES—Typical Specimens.

<i>Topotype</i>	an example from the original locality (and zone).
<i>Metatype</i>	a topotype named by the author.

## GENOTYPES—Types of Genera.

<i>Genoholotype</i>	the one, or chief	} type of genus.
<i>Genosyntype</i>	a partner	
<i>Genolectotype</i>	a later selected	

A genolectotype must be chosen out of genosyntypes.

## BIBLIOGRAPHIC TERMS.

<i>Protolog</i>	the original description.
<i>Protograph</i>	the original figure.

## DESCRIPTIVE TERMS

## Area :—

<i>Dorsum</i>	antiperipheral or dorsal area.
<i>Side</i>	lateral area.
<i>Venter</i>	peripheral or ventral area.

## Sides :—

<i>convergent</i>	sloping towards venter,
<i>divergent</i>	sloping towards dorsum.

## Umbilicus :—

<i>concav-</i>	} umbilicus	<i>basin-shaped</i>	} umbilicus.
<i>crater-</i>		<i>crater-like</i>	
<i>grad-</i>		<i>step-form</i>	

## Venter :—

<i>fastigate</i>	like ridge-roof of a house, hence :—		
<i>concavi-</i>	} fastigate	<i>with concave</i>	} slopes
<i>convexi-</i>		<i>with convex</i>	
<i>plani-</i>		<i>with plane</i>	

*sulcate*

somewhat narrower than concave :  
hence,

*carinatisulcate*

sulcate, but with a keel ; a keel  
between two furrows.

*tabulate*

level across ; hence,

*carinatatibulate*

level, but with a keel.



## Ornament :—

*Radius* — a *stria* (line) or *costa* (rib), or combination thereof, character and direction indicated thus :—

<i>recti-</i> <i>flexi-</i> <i>prorsi-</i> <i>versi-</i> <i>rursi-</i> <i>anguli-</i>	} <i>radius</i>	straight	} character.
		curved	
		inclined	} general trend.
		radially projected	
		reclined	
		v-shaped	

*Tubercle*—general term for knob, pimple, or any spine-like projection, sub-divided thus :—

<i>spine</i>	a strong projection.
<i>nodus</i>	a round knob.
<i>papilla</i>	a pimple.
<i>bullæ</i>	a knob transversely elongate.
<b><i>clavus</i></b>	a knob longitudinally elongate.
<b><i>auriculoid</i></b>	an ear-like or C-shaped marking, produced by the degeneration of a <i>clavus</i> : see below, p. x.

## Partitions :—

*Septal margin*—the suture line, or edge of partition between chambers. The following abbreviations for parts will be used :—<sup>1</sup>

## Lobes :—

<i>EL.</i>	on venter (external).
<i>L</i> <sup>1</sup>	principal lateral.
<i>L</i> <sup>2</sup>	second lateral.
<i>L</i> <sup>3</sup>	third lateral, often first of a series of auxiliaries.
<i>IL</i>	on dorsum (internal).
<i>Aux.</i> <sup>1, 2.</sup>	auxiliaries.
<i>Ac</i> <sup>1, 2.</sup>	accessory lobes developed between <i>EL</i> and <i>L</i> .

## Saddles :—

<i>ES</i>	external (between <i>EL</i> and <i>L</i> <sup>1</sup> ).
<i>S</i> <sup>1</sup>	1st lateral (between <i>L</i> <sup>1</sup> and <i>L</i> <sup>2</sup> ).
<i>S</i> <sup>2</sup>	2nd lateral (between <i>L</i> <sup>2</sup> and <i>L</i> <sup>3</sup> ).

The *Septal margin* (suture line) is often called *the septum*; but there are other septa, for instance :—

<i>Septicarina</i>	a carina	} with a septum at base.
<b><i>Septicosta</i></b>	a rib	
<i>Septituberculus</i>	a tubercle	

<sup>1</sup> See also Hyatt, Eastman trans. Zittel, Pal. I, 539, 1900.

Most—perhaps all—of the Lias Planulati (*Dactylioceras*, etc.) have each rib parted off by a septum: they are septicostate; and so the degree of costation as between test present or absent differs considerably. The septicostation is a good character by which to distinguish them from homœomorphic Bathonian, or other *Perisphinctes*, *Peltocheras*, etc.

*The clavus and auriculoid.*—On the outer lateral area of certain Oxynoticerates there are C-shaped processes which Pompeckj calls *nœuds paraboliques*. In *Am. auritulus*<sup>1</sup> there are knobs longitudinally extended, connecting two ribs in a button and loop style: each of these Quenstedt terms *eine ohrenartige schleife* (an ear-like loop or knob). A similar ornamentation of stronger, longitudinally elongated knobs is shown in *Am. sinemuriensis*, d'Orbigny,<sup>2</sup> *Am. forficatus*, Strickland-Buckman,<sup>3</sup> and other Coronicerates.

These Coronicerates, *A. auritulus* and the Oxynoticerates present, in three stages of catagenetic development, an ornament which may be called a *clavus* when a strong boss, and an *auriculoid* when a relic, as in the Oxynoticerates. The importance in the latter is its indication that they are catagenetic developments which have had an ancestor in the tuberculate stage, and hence the ontogeny of Oxynoticerates gives examples of saltative palingenesis.

If the auriculoids are rightly explained as degenerate longitudinally-elongated knobs (clavi) of the *A. sinemuriensis* pattern, then their resemblance to the ornaments which have been called parabolical curves, *Parabelknoten*, or *tubercules auriculaires* among *Perisphinctes* is only accidental.

A note in regard to SIMPSON's terms may be necessary. By *depressed* he means what would now be called compressed; by *radius* he intends simply the costa, not its pre- or post-developments—stria; by *back* or *dorsal* he denotes what are now called venter, ventral. As to his measurements, they are certainly only just approximate—in fact, they are rough.

#### AMMONITE DEVELOPMENT

The need for some of the foregoing terms and for others may be understood from the following remarks on development.

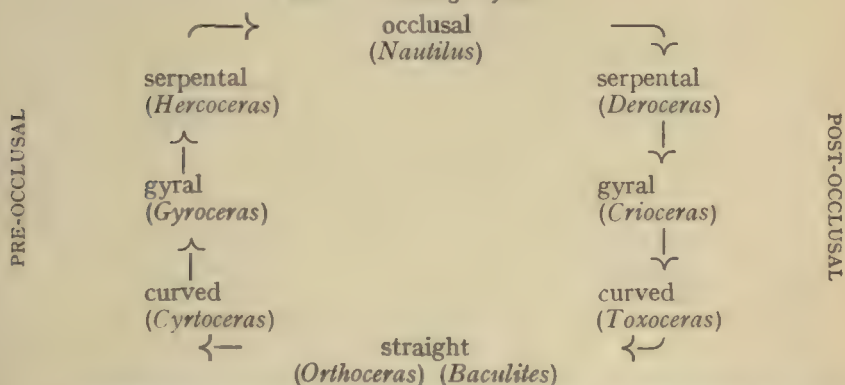
In regard to the coiling—the amount of evolution or involution—of the conch of Ammonites, there is apparent a course of cyclical development; but it is difficult to speak of anagenesis or catagenesis, of elaboration or simplification, of progression or regression, in regard to the mere changes in the coiling of the conch, considered altogether apart from its ornamentation.<sup>4</sup>

<sup>1</sup> See *A. dennyi*, No. 7.    <sup>2</sup> 1844, xcv, 1, 2.    <sup>3</sup> *Geol. Chelt.*, 1844, 104; figd. Proc. Cotteswold F. C. xv, 1906, xi, 8, 9.

<sup>4</sup> HYATT regarded increase of involution as progressive; *Gen. Arietidæ*, 71.

Among Nautiloids and Ammonoids, as a whole, the cyclical development may be represented thus :—

Table I—Coiling Cycle

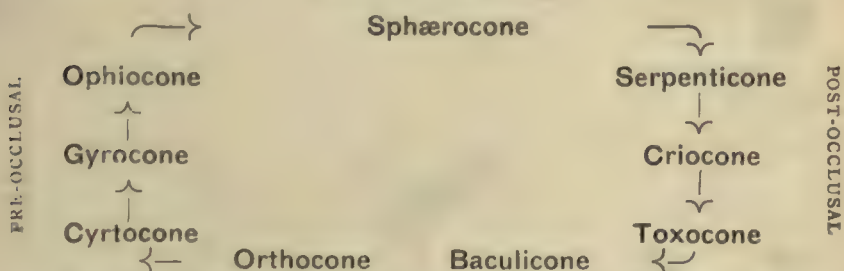


These stages represent the complete cycle of development which was accomplished from a straight cone through curving and incoiling cones up to a cone with quite closed umbilicus, back again through outcoiling and curving cones to a straight cone ; but there was always power to reverse at any stage, without completing the cycle. Of these terms, *gyral* signifies a loose volute ; *serpental*, a close volute, coiled like a snake, with whorls touching or even lapping ; and *occlusal*, an embracing or occluded volute—a cone so coiled upon itself that there is only a small or even no umbilicus.

The generic names appended stand merely as examples of the degrees of coiling : they are not necessarily in genetic relationship. The arrows refer to the cyclical development expressed by the adjectival terms, and indicate the course of a complete cycle ; but this is rare : incomplete cycles or partial cycles, with subsidiary cycles, are the rule. Many stocks end before completing the cycle.

Hyatt expressed some of the forms of Cephalopod cones by combining the word *cone* with generic names, making *Orthoceracone*, *Nautilicone*, etc. In the etymological objection taken to such a term as *Orthoceracone* for *Orthoceracone* there is little ; but the *ceras* which seems to confine the terms to Cephalopods can be omitted, with the advantage of making them applicable to molluscs generally. The following may be suggested :—

Table II—Cone Stages



Of these, Ophiocone (ὄφις, a snake) covers Hyatt's discoidal, that is, evolute Nautilicone ; Sphærocone (σφαῖρα, a ball, and *Sphæroceras*), his involute Nautilicone ; Serpenticone, Hyatt's Ammoniticone,



in part. Then Criocone is from *κρίος*, the Ionic volute, which gave *Crioceras*; and the rest are similarly obvious.

Further, there will be use for **Turricone** instead of Hyatt's *Turriliticone*: it is really a sphærocone developed as a turreted spiral; for **Scaphiticone**, from *Scaphites*, a sphærocone finishing with an attempt towards a criocone; and **Oxycone**, for highly-compressed forms which are, more or less, in the occlusal stage, but are too thin to be sphærocones—*Am. oxynotus* is an example.

Practically all the Nautiloids and Ammonoids may be distributed among these cone-stages. A species may show several stages in its ontogeny—especially in higher (later) forms; and its development may not be continuously forward in the direction of the arrow, but may be backward, especially in gerontic stages.

For instance, the Nautiloids show the pre-occlusal and occlusal stages, but they have developed nothing later than the sphærocone stage. *Lituites*, however, which attains to the ophiocone stage, does not develop a sphærocone, but runs back to produce an orthocone.

Among Ammonoids the pre-occlusal stages are shown properly by few genera, *Bacrites*, *Mimoceras*, for instance. In most cases the pre-occlusal stages are highly condensed, so that Jurassic Ammonitoids, for instance, practically begin as sphærocones; they then develop to become serpenticones, and may again pass to be sphærocones, making a subsidiary cycle (see p. xiv); or after the serpenticone stage they may develop as oxycones—a similar cycle, except for compression, for both cycles are from occlusal to serpental, to occlusal again. After the oxycone stage there is often sudden umbilical expansion, a sort of incipient scaphiticone stage: many Hildoceratidæ are oxycones ending as incipient scaphiticones. Among some of the so-called scaphitoid Ammonites this is very marked, *Creniceras*, *Cadomoceras*; but other scaphitoids are sphærocones ending as incipient scaphiticones, *Sutneria*.

Thus, while the pre-occlusal and occlusal stages are exhibited by Nautiloids, the bulk of the Ammonoids show the occlusal and post-occlusal stages; and the Ammonitoids show a sphærocone radical developing post-occlusal stages, with subsidiary cycles.

Thus the Nautiloids show an incomplete cycle—the half up to the occlusal only; but the Ammonoids exhibit all the stages of the complete cycle. Among Ammonitoids there is great mortality in the post-serpenticone stages, especially in the oxycone. Several stocks also appear to finish as criocones, or toxocones; and perhaps only one or two stocks can be regarded as attaining to the baculicone stage.

With the above terms it will be possible to state concisely the stage of evolution of the conch in the species to be described; and the position of any species in regard to the cycle of cone-development may be readily understood.

These terms can also be applied to other molluscs. Thus, *Tentaculites* are orthocones. Among Gastropods, *Bellerophon* is a sphærocone. In the Capulidæ are cyrtocones and turricones; but some which look like cyrtocones are possibly toxocones: that is, they are, perhaps, post-turriconic. The Vermetidæ show turricones trying to become baculicones; but the bulk of Gastropods are turricones, showing a kind of subsidiary cycle within the turriconic development, from occlusal to serpental, to occlusal again.

## SYSTEMATIC

## GENERIC NAMES

Certain remarks on generic names will be assembled here, and will be added to from time to time as may be required. It may be necessary for the discussion of certain genera to notice others which are not actually within the scope of this work.

## Genus, PLATYPLEUROCERAS, HYATT

1867, Foss. Ceph.; Bull. Mus. Comp. Zool., V, 92.

HYATT quotes one species, *P. latacosta* with three references; but it is evident from what he quotes that he has been misled by the wrong numbering of Sowerby's Pl. DLVI. Therefore, by *latacosta* he means *brevispina*; and the other references which he quotes indicate this: *A. latacosta*, Zieten, *A. natrix rotundus*, Quenstedt, are both akin to *A. brevispina*, Sowerby.

It is advisable to take as type *A. latacosta*, Zieten, non Sowerby.

## Result

Genus, PLATYPLEUROCERAS, HYATT, 1867. Genolectotype, *Am. latacosta*, Zieten, non Sowerby.

## Genus, HARPOCERAS, WAAGEN, 1869

1869, Formr. Am. subradiatus; Geogn.-Pal. Beitr. II, (2) 245—250.

This genus was proposed by WAAGEN for a very comprehensive series which the author himself admits had been already distributed by HYATT into several families and many genera. WAAGEN proposed it specially for the Falciferi of the Lias (p. 250), as he shows by his name. Evidently again from the naming, out of the Falciferi, *A. falcifer*, J. Sowerby, is the species rightly to be selected as the type. This is the substance of what Dr. HAUG wrote to me many years ago, in proposing that the genus *Harpoceras* should be restricted to the true Falciferi, with *Am. falcifer* as type (Geol. Mag., 1887, (3), IV, 400); and this suggestion I carried out (Ibid., p. 397).

The strong sickle-shaped ribs and the undercut umbilical edge are special features of the genus.

## Result

Genus, HARPOCERAS, WAAGEN. Genolectotype, *A. falcifer*, J. Sowerby.

## Genus, AGASSICERAS, HYATT, 1875

1875, New Gen. Amm.; Proc. Boston Soc. Nat. Hist. XVII, 225.

In his original description of the genus, HYATT included three species, *Am. levigatus*, J. de C. Sowerby, *Am. striaries*, Quenstedt, *Am. scipionianus*, d'Orbigny. The first of these would fall into the genus *Cymbites*, Neumayr, 1878; and for the last HYATT has erected a genus *Ætomoceras* (1900, Eastman-Zittel, 575). This leaves *Am. striaries* as the type; and the comparable species mentioned in p. 6c., with *A. resupinatus*, appear to be stout developments of a *striaries*-like form. *Ætomoceras* is the thin development from a similar stock.

In discussing such species—Geol. Mag. (4) I, (1894), 359—I suggested that *Am. scipionianus* might be taken as the type of *Agassiceras*, and ranged *A. sauzeanus* with it; but HYATT preferred to make a new genus for *A. scipionianus*. He did not see the relationship of *A. sauzeanus* with the *striaries* and *scipionianus* series; for he placed it in *Coroniceras*—Gen. Ariet.; Smithson. Contrib. 673 (1889), 184; but the deficiency of channels and the *Asteroceras* pattern of lobes remove *A. sauzeanus* and its allies from *Coroniceras*.

## Genus, OXYNOTICERAS, HYATT, 1875

1875, New Gen. Amm.; Proc. Boston Soc. Nat. Hist. XVII, 230.

According to the etymology, *A. oxynotus*, Quenstedt, must be taken as the type. For a treatise on the species of the genus see POMPECKJ, Com. Serv. Géol. Port., vi, 1906, 214.

The many Liassic species assigned to the genus are so diverse in character that they are probably polyphyletic—Quart. Journ. Geol. Soc., LIV, 1898, Table II, facing p. 451, and p. 453.

The *A. oxynotus*-series is probably a lateral branch from *Agassiceras*, through stages akin to *Asteroceras*. This is close to POMPECKJ's result (p. 333), but see S. BUCKMAN, Mon. 1889, 226, and 1898 op. cit. above.

*A. oxynotus*, which is a phylogerontic form of the series, shows remarkable saltative palingenesis. Its ornament-record would be, in phylogeny, 1, 2, 3, 4, 5, 4c, 3c, but its ontogeny is often 1, 3c, a skipping of five stages. See also POMPECKJ, 286. For evidence as to stage 5 in *Oxynoticeras*, see *A. dennyi*, No. 7.

## Genus, HARPOCERATOIDES, nov.

Type, *Am. alternatus*, Simpson (see No. 9).

The rib-curve is subfalciform, not strongly geniculate; the ribs are bundled on the inner area in a wavelike manner; the umbilical edge is bevelled, tending to concave; there is a small septicarina.

The rib-curve, the bundling of the ribs, and the inner margin bevelled instead of undercut, separate this genus from *Harpoceras*: the less falciform radial line, with less distinct angulation in the lateral area, is especially noticeable.

Of the Comparable Species in page 9c, *A. strangewaysi* and *H. kisslingi* belong here; *A. ovatus* has similar rib-curve, but a different suture-line.



DESCRIPTIONS  
AND  
PLATES





•  
1. RETICULARIS,

AMMONITES

AMALTHEUS

# 1. AMMONITES RETICULARIS, SIMPSON (Plate I)

## Original Description

"70. *Ammonites* reticularis. [M. SIMPSON, 1843, p. 58.]

["II. With a keel on the back.

"a. *Outer whorl broad.*" p. 51.]

"Of this fossil I know but little. I saw it two or three years ago, to the best of my recollection. It resembles *A. stokesi*, and was beautifully covered with delicate, reticulated striae."

## Additional Details

SIMPSON, 1855, p. 78. "120. *A. reticularis*, *Simp.* — Volutions 5, inner ones more than  $\frac{1}{2}$  concealed, outer whorl  $\frac{1}{2}$  the diameter, most convex on the outer half: transverse stria numerous, fine, waving, crossing numerous fine longitudinal stria: keel or back rounded, and slightly crenated by the stria: aperture triangular, or slightly ovate: diameter,  $2\frac{1}{4}$  inches.

"This comes near to *A. lenticularis*, but the outer half of the whorl is thicker. It is from the iron-stone beds of the middle lias, along with *A. Hawskerensis*.—Mr. Ripley's Coll."

SIMPSON, 1884, p. 114, omits last three words. Adds to first par. "M. L., z. Hawsker."

## Remarks

Stages, conch. oxycone; periphery, ac, ornament, *pc* passing to *sc*, but showing development of longitudinal stria (this character anagenetic?).

The diameter is 61 mm. The specimen is in a lump of matrix containing several examples of *Palaemonoceras*, a specimen of *Pseudofactos agassizii*, etc.

The genus is *Amaltheus*, Montfort, 1808, family Amalthœidae.

## Result

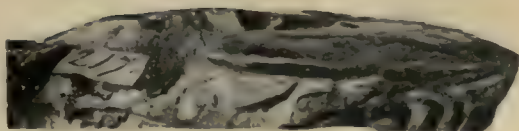
AMALTHEUS RETICULARIS, SIMPSON sp. 1843, Domerian, *stretton-zone*, Hawsker, near Whitby.



Fig. 1

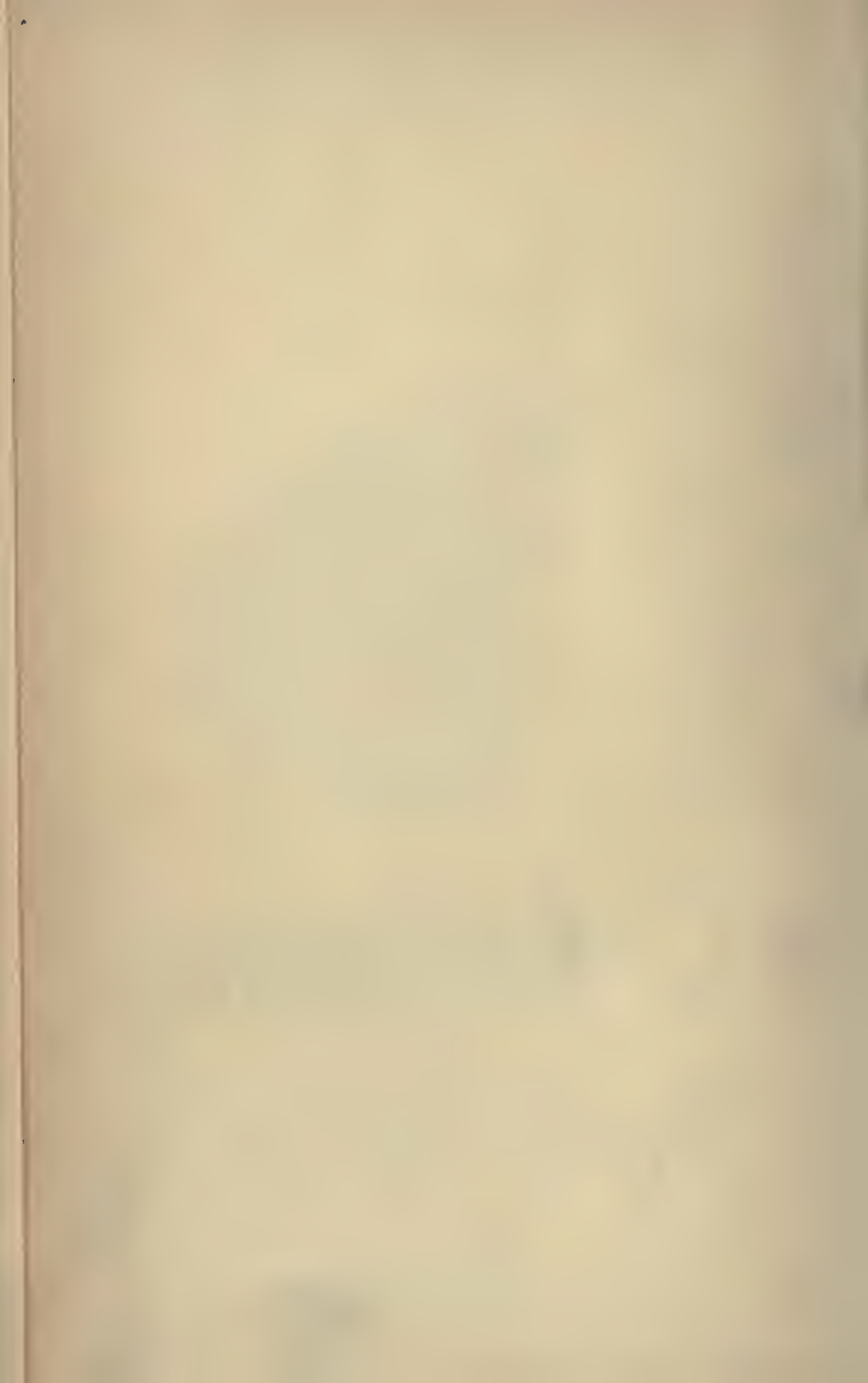


Fig. 2



AMMONITES RETICULARIS, SIMPSON, 1843  
Whitby Museum, No. 217, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view

AMALTHEUS RETICULARIS, SIMPSON SP.



*Comparable Species*

*Ammonites engelhardtii*, d'Orbigny, 1884, LXVI.  
*Amaltheus margaritatus*; Bayle, 1878, XCIII, 5.  
*Amaltheus engelhardti*; Wright, 1883, LXX.



## 2. AMMONITES RIPLEYI, SIMPSON (Plate II)

### *Original Description*

"II. A[mmmonites] Ripleyi. [M. SIMPSON, 1843, p. 11.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Depressed; volutions 5 or 6 exposed; radii straight, diverging, obtuse, bend towards the aperture in passing over the back; a row of minute tubercles on the outer margin of the whorls; aperture quadrate; diameter  $\frac{6}{10}$  inch.

"This rather resembles the last [*A. trivialis*], but the whorls diminish less rapidly, and are flatter on the sides; the tubercles are much more regular, and are continued upon the inner whorls; the radii also, in passing over the back, do not form angles as in *A. trivialis*. This is also from the Lower Lias at Robin Hood's Bay."

### *Additional Details*

SIMPSON, 1855, p. 44, after "back" in first par., adds, "where they are obsolete"; omits "depressed" at beginning, and all second par.; 1884, p. 74 as 1855.

### *Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 5.

The suture-line is similar to that of *A. regnardi*, given by D'ORBIGNY: L<sup>1</sup> is similarly unequally tridactyloid; but L<sup>2</sup> is more oblique.

The diameter of No. 106 in Whitby Museum is seven-tenths of an inch.

The genus is *Uptonia*, S. Buckman, 1898, 453—family Polymorphidæ. The geological position is presumably "Lower Lias y"

### *Result*

UPTONIA RIPLEYI, SIMPSON sp. 1843. Charmouthian [*jamesoni*-zone], Robin Hood's Bay, near Whitby.

Fig. 1

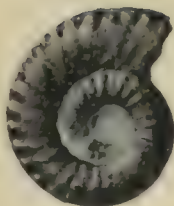


Fig. 2



Fig. 3



AMMONITES RIPLEYI, SIMPSON, 1843  
Whitby Museum, No. 106, Holotype; Fig. 1, Side view;  
Fig. 2, Apertural view; both x 1.5; Fig. 3, Part of whorl with suture lines, x 4.





*Comparable Species*

*Am. jamesoni*, J. de C. Sowerby, 1827, DLV, 1.

*Am. obsoletus*, Simpson, 1843, 23.

*Am. regnardi*, d'Orbigny, 1844, LXXII, I, 2.

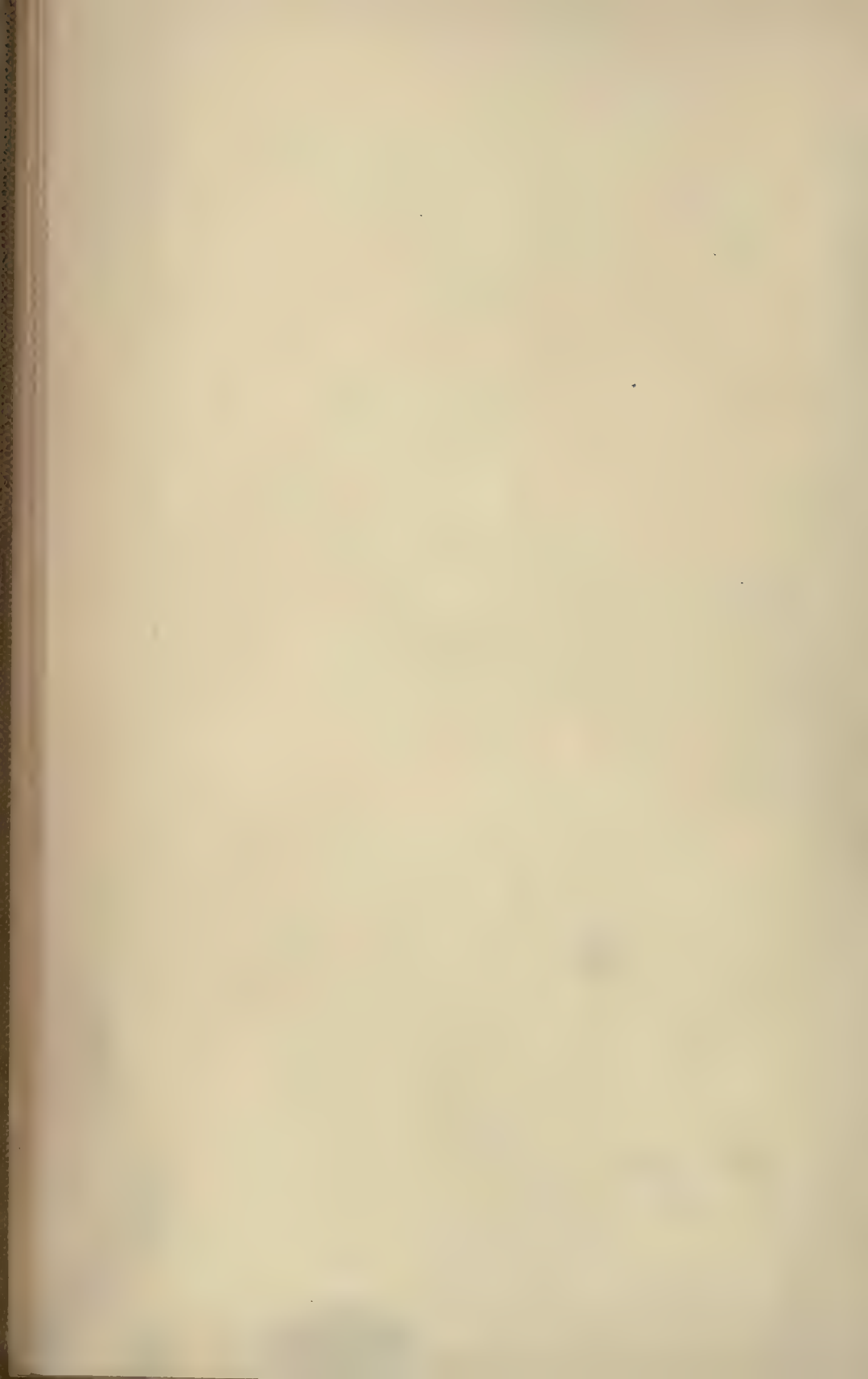
*Am. jamesoni angustus*, Quenstedt, 1849, IV, 8.

" " " " ; Oppel, 1853, II, 4, 5.

*Am. ignotus*, Simpson, 1855, 61.

*Ægoceras jamesoni*; Wright, 1882, LI, esp. 4—6.

*Dumortieria jamesoni*, var. *angusta*; Haug, 1887, IV, 6.



3. AUREUS

AMMONITES

PLATYPLEUROCERAS



### 3. AMMONITES AUREUS, SIMPSON (Plate III)

#### *Original Description*

" 34. A[mmonites] aureus. [M. SIMPSON, 1855, pp. 44, 45.]

[" Without a dorsal keel or furrow.

" *a. No spines.*" p. 35.]

" Volutions 5, exposed, outer whorl  $\frac{1}{4}$  the diameter ; radii numerous, straight, sharp, equal to the intervening concave spaces, ornamented [p. 45] with two rows of flattened tubercles ; back rounded, nearly plane ; aperture subquadrate ; diameter 1 inch.—L. L. ; R. H. Bay [Lower Lias, Robin Hood's Bay].

" This resembles *A. Ripleyi*, but the outer whorl is narrower, and the radii are much sharper, and more prominent, and have two rows of tubercles ; the ramifications of the septa are very delicate, rounded, and numerous."

#### *Additional Details*

SIMPSON, 1884, p. 74, none ; p. xxi, entered in Lower Lias 13.

#### *Remarks*

Stages, conch, serpenticonic ; periphery, 1 ; ornament 5\*\*.

The suture-lines are crowded, somewhat intricate, and difficult to follow. They show a general likeness to the pattern of *A. maugenesti* depicted by D'ORBIGNY, and also to that of *A. regnardi*, of the same author.

The diameter of No. 107 is 27 mm.

The genus is *Platypleuroceras*, Hyatt (*Gen. p. 1*), and family Polymorphidæ.

If the genus is correct, then the geological position given by SIMPSON is too low : it is probably from Lower Lias y instead.

There is a prior *Am. aureus*, Young & Bird, 1822 ; but SIMPSON'S name is a homonym, not a synonym, so it can be retained.

#### *Result*

PLATYPLEUROCERAS AUREUM, SIMPSON sp. 1855 [Charmouthian, about *jamesoni*-zone], Robin Hood's Bay, near Whitby.

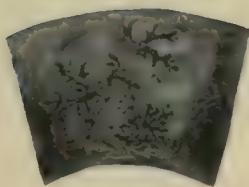
Fig. 1



Fig. 2



Fig. 3



AMMONITES AUREUS, SIMPSON, 1855  
Whitby Museum, No. 167, Holotype; Fig. 1, Side view;  
Fig. 2, Apertural view; Fig. 3, Part of whorl with suture-lines,  $\times 4$

PLATYPLEUROCERAS AUREUM, SIMPSON SP.





*Comparable Species*

- Am. brevispina*, J. de C. Sowerby, 1827, DLVI, 1[2].  
*Am. natrix rotundus*, Quenstedt, 1849, Ceph., IV, 17.  
*Am. grumbrechtii*, Schloenbach, 1863, XII, 1.  
*Cyloceras molare*, Hyatt, 1867, 92.  
*Am. natrix birchoides*, Quenstedt, 1884, XXXIII, 5.



L. M. 2. 2. 2. 2. 2. 2.

ARGENTUS

HELMUTH

#### 4. AMMONITES MULGRAVIUS, YOUNG & BIRD (Plates IVA, IVB)

##### *Original Description*

[YOUNG & BIRD, 1822, p. 251.]

"No. 8, Pl. XIII, greatly resembles this last shell [*a. elegans* of Sowerby], and has the same localities; but the internal angles of the aperture or spire, instead of being truncate or bevelled, are sharp and rather prominent, the margin of the outer whirl projecting somewhat over the next whirl. There is also a groove, as in *a. Hildensis*, generally dividing the whirl longitudinally, or rather spirally. This shell is often pyritous, and of great beauty. As it occurs chiefly on the shores of the Mulgrave estates, we may name it *a. Mulgravius*."

##### *Additional Details*

YOUNG & BIRD, 1828, p. 266. "No. 8, Pl. XIII, is a very handsome shell of this family [ammonites with sigmoidal ribs], with ribs approaching to the hook shape, and a sharp keel. The ribs are broader than the spaces between them; and these spaces are often like deep furrows, grooved out between the ribs. The aperture is somewhat sagittate; and the inner edge of each whirl overhangs part of the next whirl. This noble ammonite, which sometimes exceeds 10 inches in diameter, we have named *A. Mulgravius*, as we found it first on the shores of the Mulgrave estates, in lias bands."

[P. 267.] "All these sigmoidal ammonites are keeled. Some of them have often a depressed line in the side of each whirl; particularly *A. Mulgravius*. The chambers of this last sometimes contain mineral oil: they are also found lined with pearl spar, and containing here and there large crystals of calcareous spar."

##### *Remarks*

Stages, conch, between serpenticon and oxycone; periphery, 3c; ornament, 4c.

For evidence as to size of the type-specimen and its amount of umbilication see *A. exaratus*, p. 5b: YOUNG & BIRD's figure is much reduced, and the drawing of the umbilicus quite misleading.

The specimen has a septicarina; and there is at least half a whorl of body-chamber. The inner whorls show swellings—the stage of the furcating ribs, which precedes the stage of single falciforms.

The genus is *Harpoceras*, Waagen (*Gen. p. i*) — family Hildoceratidæ; and the geological position, according to SIMPSON, (1884, 109, xii) is Upper Lias, 5b.

##### *Result*

HARPOCERAS MULGRAVIUM, YOUNG & BIRD, sp., 1822, Whitbian, *falciferum*-zone, Mulgrave, about 6 miles N.W. of Whitby.



Fig. 1

Fig. 2



AMMONITES MULGRAVIUS, YOUNG & BIRD, 1822  
Whitby Museum, No. 205, Holotype—Specimen figd. Pl. XIII, f. 8  
Fig. 1, Side view; Fig. 2, Apertural view; both  $\times 0.5$

HARPOCERAS MULGRAVIUM, YOUNG & BIRD SP.



Fig. 1



AMMONITES MULGRAVIUS, YOUNG & BIRD, 1822  
Whitby Museum, No. 205, Holotype—Specimen figd. Pl. XIII, f. 8  
Fig. 1, Side view (portion), nat. size. Diameter is 235 mm.

HARPOCERAS MULGRAVIUM, YOUNG & BIRD SP.





*Comparable Species*

*Am. falcifer*, J. Sowerby, 1820, CCLIV, 2; see C. Thompson, "Naturalist," 1909, Pl. xiv, 1 and [3], p. 214.

*Am. serpentinus*; d'Orbigny, 1844, LV.

*Leioceras serpentinum*; Bayle, 1878, LXXXVIII, 7.

*Harpoceras serpentinum*; Wright, 1882, LVIII, fig. reduced.

*H. jellenbergi*, Hug, 1898, IV, 3.

*H. serpentinum*; Hug, V, 1.



5. EXARATUS,

AMMONITES

HARPOCERAS

5. AMMONITES EXARATUS, YOUNG & BIRD  
(Plate V)

*Original Description*

[YOUNG & BIRD, 1828, p. 266.]

"We have a smaller shell nearly corresponding with this [*A. Mulgravius*], but having the inner angle of each whirl sloping backward, instead of projecting forward, and showing considerably less of the inner whirls. This ammonite has also the grooved furrows more uniformly marked; and hence we have named it *A. exaratus*."

*Remarks*

No figure was given.

Stages, conch, between serpenticone and oxycone; periphery, 3c; ornament, 4c to 3c.

There is a septicarina; the umbilical edge is not undercut, but steeply bevelled; there is about half-a-whorl of body-chamber, the specimen being, apparently, complete. There are the following stages of development:—(1) the furcating rib stage in the umbilicus; (2) the single rib, falciform stage; (3) the finer rib stage, less falciform.

The species may be admitted into the genus *Harpoceras*, Waagen (*Gen* p. 7), but differs from the typical series of the genus by not having an undercut umbilical edge, and by beginning to lose the strong falciform character of ribbing.

The geological position, according to SIMPSON, is "U.L. 7, rather abundant in the Jet Rock" (1884, 107).

*Result*

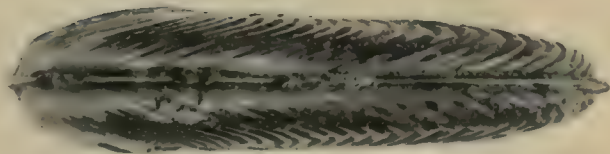
HARPOCERAS EXARATUM, YOUNG & BIRD, sp., 1828, Whitbian, *exaratum*-zone, near Whitby.



Fig. 1



Fig. 2



AMMONITES EXARATUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 202, Holotype  
Fig. 1, Side view; Fig. 2, Peripheral view

HARPOCERAS EXARATUM, YOUNG & BIRD, SP.



*Comparable Species*

*Harpoceras exaratum*; Blake, 1876, II, 5, has a smaller umbilicus than the subject.

*H. exaratum*; Wright, Mon., 1882, LXII, 1-3, is a form more catagenetic than the subject—a further development of stage 3, with a smaller umbilicus. It is in the same degree of development as

*Am. elegans*, J. Sowerby, 1815, XCIV, 1, which, however, may possess a more triangulate aperture.

*Harpoceras lythense*; Hug, 1898, III, 1.





6. RESUPINATUS,

AMMONITES

AGASSICERAS

6. AMMONITES RESUPINATUS, SIMPSON  
(Plate VI)

*Original Description*

"22. A[mmonites] resupinatus. [M. SIMPSON, 1843, pp. 15, 16.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Depressed; volutions 5, exposed, radii on the outer whorls sharp, prominent, bend from the aperture, separated by wide concave spaces, form sharp points on the outer margin of the whorl, nearly obsolete on the back, absent on the inner whorls; striae numerous, distinct, rather bent, shell thick; aperture quadrate; diameter 1 inch.

"This species is smooth and shining, both on the cast and where the shell remains. The block from whence it was extracted is in [p. 16] the Whitby Museum, and was procured from the lower Lias at Robin Hood's Bay."

*Additional Details*

SIMPSON, 1855, p. 43, the same; 1884, p. 73 omits "depressed," adds "Ind. 23."

*Remarks*

Stages, conch, serpticone; periphery, 2; ornament 2, jumping to 5, the inner whorls showing a finely-striate stage.

The genus would be *Agassiceras*, Hyatt (**Gen.** p. *ii*)—family Arietidæ.

The geological position given by SIMPSON is above the *semicostatus* bed: this seems rather too high. BLAKE, 1876, 288, says, "Zone of *A. Bucklandi*."

*Result.*

AGASSICERAS RESUPINATUM, SIMPSON, sp., 1843, Sinemurian [gmundense-zone], Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



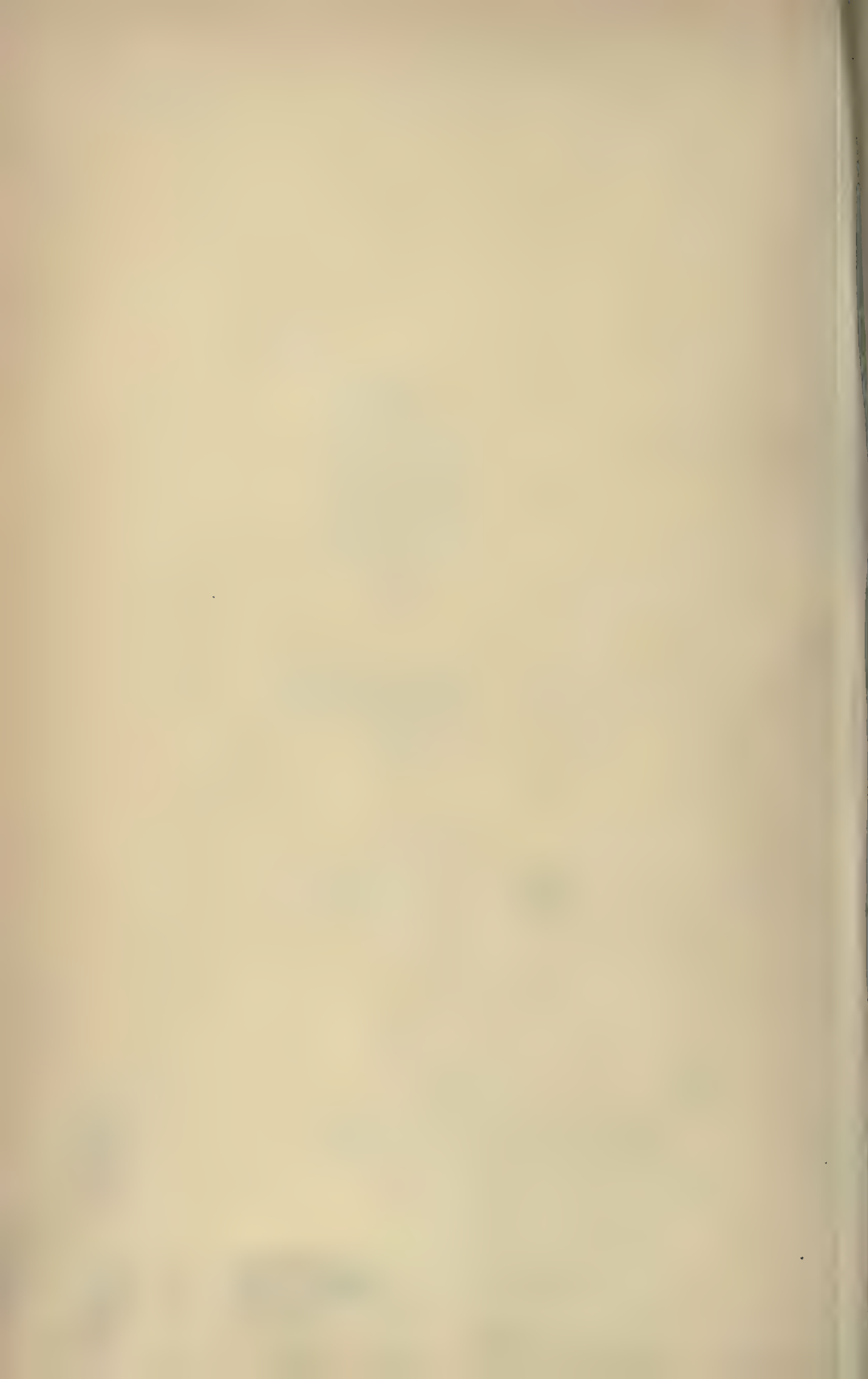
Fig. 3



AMMONITES RESUPINATUS, SIMPSON, 1843

Whitby Museum, No. 96, Holotype

Fig 1, Side view; Fig. 2, Peripheral view; both nat. size  
Fig. 3, Approximate delineation of two septal margins,  $\times 3$



*Comparable Species*

*Am. sauzeanus*, d'Orbigny, 1844, xcv, 4, 5.

*Am. halecis*, J. Buckman, 1844, xi, 9; refig. Pal. U., 1904, 26.

*Am. spinaries*, Quenstedt, 1856, Jura, vii, 4, and 1883, xi, 8—14.

*Am. riparius*, Oppel, 1862, xl, 2.

*Arietites sauzeanus*; Wright, 1878, Pl. viii, spp. varr.; 1, 2 has resupinate ribs, but appears to be too stout.





7. DENNYI

AMMONITES

OXYNOTICERAS

## 7. AMMONITES DENNYI, SIMPSON (Plate VII)

### *Original Description*

"7. A[mmonites] Dennyi. [M. SIMPSON, 1843, pp. 9, 10.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Volutions 3, inner ones  $\frac{1}{2}$  concealed, outer whorl about  $\frac{1}{2}$  the diameter; sides flattened, back obscurely triangular; radii few, nearly obsolete; sulci or constrictions regular, small, distant, straight, diverging, distinct on the inner margin of the whorl, obsolete on the back; aperture subquadrate; diameter  $\frac{1}{2}$  inch.

"This small Ammonite is from the lower lias at Robin Hood's Bay. Considering its small size, it is rather a thick species. The [p. 10] constrictions are generally obsolete on the back, but in some places they are visible; they are then observed to make a sudden bend towards the aperture. It is smooth and shining, and of a bronze colour.

"In naming this species, I have great pleasure in the recollection of Mr. H. Denny, Keeper of the Leeds Museum, whose pencil has long been employed in illustrating the minutest part of animated nature, and whose talents and devotedness to Natural Science do honour to the institution with which he is connected."

### *Additional Details*

SIMPSON, 1855, 38, has, instead of 3rd par., "Var. without constrictions"; 1884, 66, in 1st par., after "triangular," has "or round"; after "subquadrate" has "or ovate"; adds to 2nd par., "ind. band 3."

### *Remarks*

Stages, conch, sphærocone, and incipient oxycone; periphery, 1; ornament, 1 and incipient 5.

The septal margin is extremely simple, there being only a Goniatitic lobe-line, with serrated edges. The sides show  $L^1$  and  $L^2$ , both very short.

Of the three examples figured, 1 and 2 agree with SIMPSON's measurement; but fig. 1 seems to agree best with his description: therefore it is presumably the holotype.

The general appearance of the specimens suggests the genus *Cymbites*, Neumayr; but in fig. 1, marked by the arrow, is an auriculoid, a specialized tuberculate development (Introd., p. ix), which may be marked as 5†. QUENSTEDT illustrates how *A. riparius*, Oppel, which is in stage 5, and might be reckoned as an *Agassiceras*, develops into *A. auritulus*, stage 5† (Amm. Schwäb. xxiv, 13—16). *Agassiceras* shows the development of stage 2 into 5 (see No. 6). But *A. dennyi* develops stage 1 into 5† direct. However, the auriculoid shows that *A. dennyi* must be descended from a form that had reached stage 5†, e.g., *A. auritulus*. *A. oxynotus*, which Pompeckj has rightly noted as a descendant of *riparius* (+ *auritulus*), is even more *post-auritulum* than *A. dennyi*, for in its ontogeny it often omits the auriculoid stage: it passes from 1 to 3c direct, though its ancestors have come through



AMMONITES DENNYI, SIMPSON, 1843  
Whitby Museum, No. 470. Fig. 1, Side view; 1A Peripheral view of  
Holotype. Figs. 2, 3, Side views of Paratypes; all  $\times 2$





all up to 5† and 4c. POMPECKJ has noted the presence of auriculoids in certain *Oxynoticeras* species (p. 274). Thus *A. dennyi*, with its auriculoid, is not a primitive form, but a decadent—a *post-auritulum*, *pre-oxynotum* *Oxynoticeras*, Hyatt (**Gen.** p. 11); and its contracted body-chamber is not a gerontic sign: it is normal growth from sphærocone towards oxycone.

The retention of the goniatitic form until the advent of the auriculoid is a case of undue prolongation or retention of larval characters: it is cunctative palingenesis. The jump from stage 1 to stage 5 is an example of saltative palingenesis; and the appearance of the auriculoid before the carina is an instance of precedentive palingenesis.

#### Result

OXYNOTICERAS DENNYI, SIMPSON, sp. 1843, Sinemurian, *oxynotum*-zone, Robin Hood's Bay, near Whitby.

#### Comparable Species

*Am. auritulus*, Quenstedt (non *A. riparius*, Oppel), Am. Schwäb. Jura, 1884, Pl. xxiv, fig. 13 only. Take this as type of *A. auritulus*.  
*Oxynoticeras oxynotum*; Hyatt, 1889, x, 4, 5, 14—20.



8. POLYOPHYLLUS,  
AMMONITES  
OXYNOTICERAS

## 8. AMMONITES POLYOPHYLLUS, SIMPSON (Plate VIII)

### *Original Description*

"71. A[mmonites] polyphyllus. [M. SIMPSON, 1843, p. 39.]

["II. With a keel on the back.

"a. Outer whorl broad." p. 31.]

"Much depressed; volutions 5, inner ones very little exposed, outer whorl  $\frac{1}{2}$  the diameter, inner margin rounded, sides convex, then concave; back thin; radii obtuse, depressed, waving; keel sharp, much elevated; aperture triangular; diameter  $3\frac{1}{4}$  inches.

"This Ammonite is distinguished by the great number and regularity of the foliations of the septa, which ornament the whole surface of the whorls by their meanderings; the inner edge of the whorls are rounded, as in A. Simpsoni, and the thin back is greatly produced, so as to be easily knocked off. The radii, in general, are nearly obsolete towards the inner margin of the whorl, and become gradually more distinct towards the back, but a fine specimen in the possession of Mr. Bean is entirely destitute of radii."

### *Additional Details*

SIMPSON, 1855, p. 81, "A. polyphyllus," with same description; 1884, p. 117, omits a little, but adds "L.L., R. H. Bay [Lower Lias, Robin Hood's Bay]."

### *Remarks*

Stages, conch, oxycone; periphery, 2c; ornament, 3c.

The species belongs, at present, to the genus *Oxynoticeras*, Hyatt (*Gen ii*), and family Arietidæ. It presumably came from the indurated band, Div. 13, (SIMPSON, 1884, p. xxi).

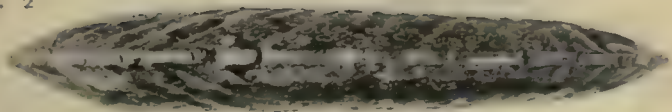
### *Result*

OXYNOTICERAS POLYOPHYLLUM, SIMPSON sp. 1843, Sinemurian, [oxynotum-zone,] Robin Hood's Bay, near Whitby.

Fig. 1



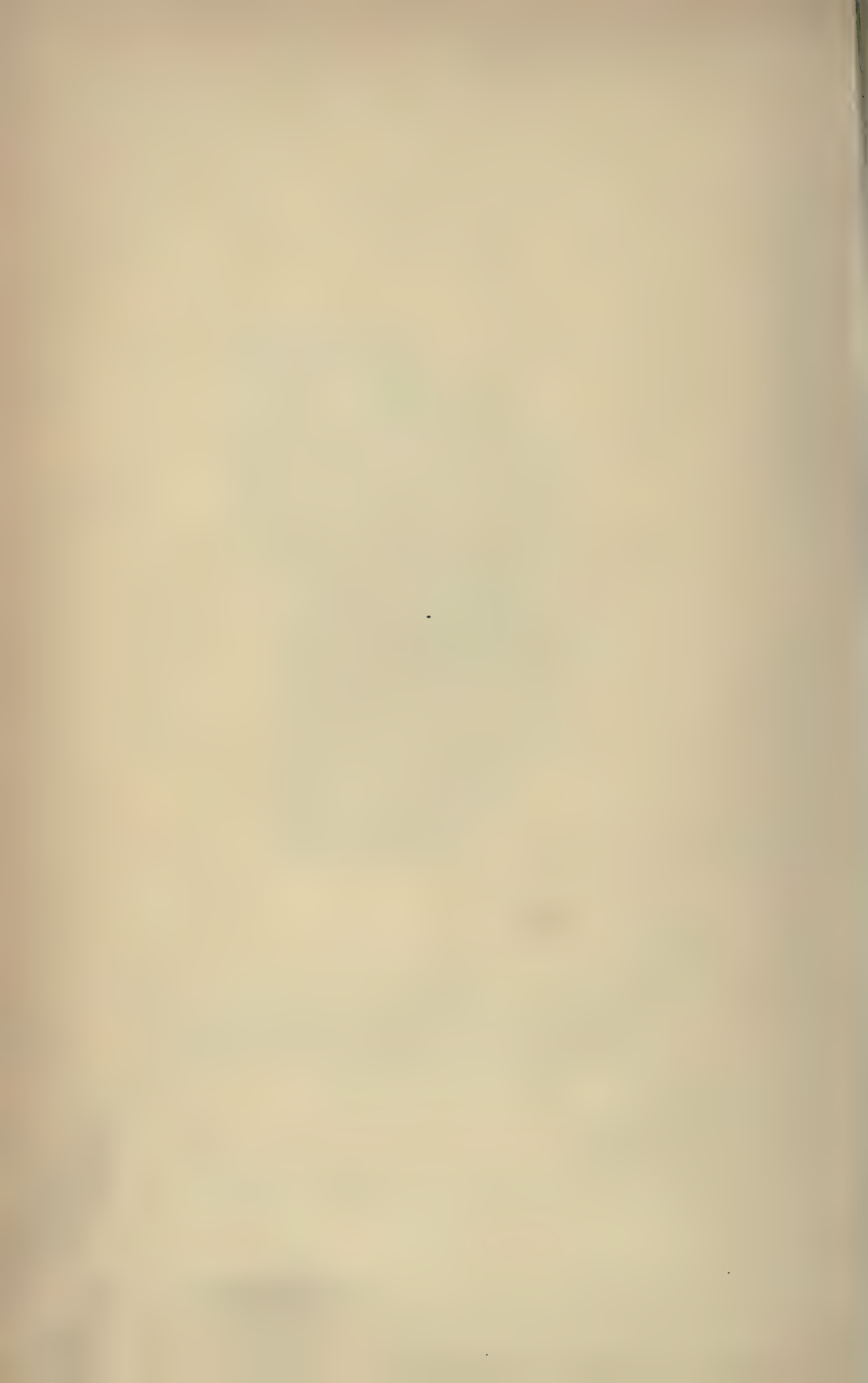
Fig. 2



AMMONITES POLYOPHYLLUS, SIMPSON, 1843  
Whitby Museum, No. 739, Holotype  
Fig. 1, Side view; Fig. 2, Peripheral view

OXYNOTICERAS POLYOPHYLLUM, SIMPSON SP.





*Comparable Species*

*Amaltheus oxynotus*; Wright, Mon. 1881, XLVI, f. 4, 5 only. This appears to be the same species with costal details and peripheral acuteness exaggerated, perhaps by the artist. It is distinct from *A. oxynotus*, Quenstedt.

*Ammonites sæmanni*, Dumortier, 1867, XLIII, f. 1, 2 only, appears to be a possible old age derivative of *A. polyophyllus*.

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## PART II

<i>Introduction :—</i>	Page
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### *Descriptions :—*

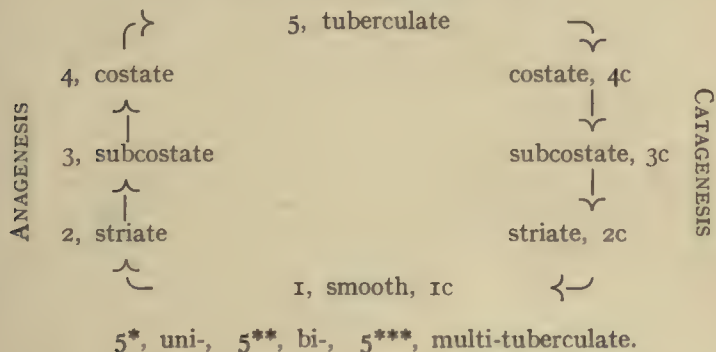
9. A. alternatus ... ..	Plate IX
10. A. subconcausus ... ..	" X
11. A. boubiensis ... ..	" XI
12. A. levisoni ... ..	" XII
13. A. lythensis ... ..	" XIII
14. A. rudis ... ..	" XIV
15. A. beani ... ..	" XV
16. A. ambiguus ... ..	" XVI
17. A. belcheri ... ..	" XVII
18. A. convolutus ... ..	" XVIII
19. A. exortus ... ..	" XIX
20. A. lenticularis ... ..	" XX
21. A. ignotus ... ..	" XXI
22. A. elaboratus ... ..	" XXII
23. N. subcarinatus ... ..	" XXIII

Plates of 9, 10, 11, were issued in Part I ; text of No. 23 will be issued in next part.

The test ornament of Ammonites is usually considered under two headings: (1) lateral, (2) ventral, areas. The two areas often develop independently; and so a rather arbitrary separation is a convenience.

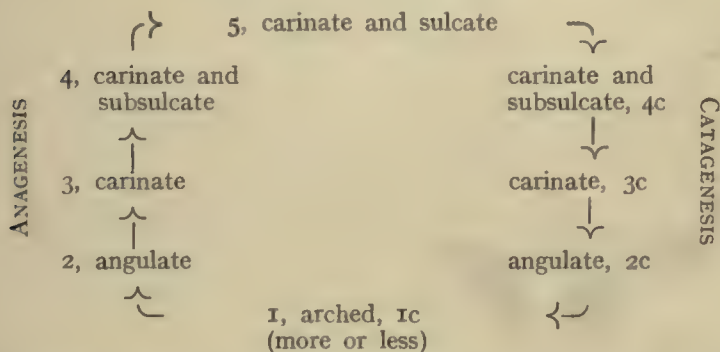
For the lateral test-ornament (or simply, ornament) of Ammonites, development follows a cycle, which may be shown in diagrammatic form, as under:—

Table III—Ornament Cycle



And the development of a carinate periphery may be similarly tabulated, for comparison:—

Table IV—Periphery Cycle



Stages of anagenesis may be marked by plain numbers; of catagenesis by numbers with c attached. So a costate anagenetic stage is 4, and a costate catagenetic, 4c. Then 4 denotes a costate stage increasing in strength and pre-spinous; but 4c a costate stage decreasing in strength and possibly post-spinous: the change from anagenesis to catagenesis (reverse) may take place at any stage.

After anagenesis, instead of continuous catagenesis of ornament, there may be renewed anagenesis following a certain period of catagenesis (subsidiary cycle). This may be observed in the development of the *A. armatus* Ammonites from a bituberculate form like *A. birchi*.<sup>1</sup> The phylogeny reads thus—I, 2, 3, 4, 5\*, 5\*\*, 5\*, 4c, 3c, 4, 5\*;

<sup>1</sup> See also Two Toarcian Amm.; Quart. Journ. Geol. Soc. lix, 1903, 460.

though the ontogeny of an *armatus* Ammonite itself may only reveal 1, 2, 5\*. The long, smooth stage (1) in young *A. armatus* may be regarded as an example of cunctative palingenesis. The skip from 2 to 5\*, the last 5\* of the phylogenetic series, is saltative palingenesis.

There are some other apparent exceptions to orderly development. For instance, in the capricorn group, instead of the costæ accumulating material at only one point, and so each one producing its tubercle, the costæ swell greatly all round: there is an exaggerated costate stage which presently breaks up into the bituberculate stage. There is something similar in the *jamesoni*-series, where a unituberculate stage passes into an exaggerated costate stage, which is not really a cata-genetic development.

*Tachygenesis and Palingenesis (Saltative and Cunctative).*—These phenomena may be observed well in the capricorn Ammonites and their sphærocone developments, the nautiliforms (*A. nautiliformis*, J. Buckman, *A. bechei*, Sow., etc.). The capricorn stage (serpenticone), with massive annular ribs (really modified 5\*), passes again into a sphærocone stage, with ornament 5\*\* ; and there is constant shortening of the capricorn stage, earlier development of the nautiliform (*tachygenesis*), until, in the latest species (*A. bechei*, etc.), the capricorn stage is omitted altogether—the *Cymbites*-stage (sphærocone) passes directly into the nautiliform, or secondary sphærocone (*saltative palingenesis*). But the young whorls of the nautiliforms retain a smooth sphærocone stage longer than did the capricorns—*cunctative palingenesis*.

Then the capricorns themselves show saltative palingenesis. The full development exhibited by their predecessor, *A. planicosta*, is 1, 2, 3, 4; some capricorns omit stages 2, 3, and jump from 1 to the strong-ribbed stage 4.

The record of developmental stages of ornament among certain genera of Arietidæ illustrate tachygenesis and saltative and cunctative palingenesis, as in the following table:—

Table V—Development Stages (Ornament)

GROWTH STAGES	<i>Arnioceras</i> spp.			<i>Coroniceras</i> spp.		<i>Astero-ceras</i>	<i>Oxynoticeras</i> spp.	
	I.	II.	III.	I.	II.	I.	I.	II.
Gerontic	..	..	..	..	4c	3c	2c	1c
Ephebic	2	4 3	5	5	4c	4c	2c	2c
Neanic	2	2	4 3	5	4c	4c	3c	2c
			2	4	5		4c	3c
Nepionic	I	I	I	I	I	5 I	5 I	I I



*Precedentive palingenesis.*—This term is proposed for the phenomenon of acceleration greater in one character than another, so that a feature of one part which, according to the phylogenetic record, was developed later than a feature of another part, is unduly accelerated, until, in ontogeny of later species, it precedes instead of succeeds. Thus phylogeny may show the ventral carina as a later development than lateral ribs; but ontogeny of later species may show carina appearing before ribs.

In Man, the rapid development of the brain and enlargement of the skull in the embryo would appear to be an instance of precedentive palingenesis.

Among Nautiloids the furrow due to whorl-contact (ophiocone stage) appears in the ontogeny of higher forms (nautilicones) before contact takes place. This is either precedentive palingenesis, as regards the furrow, or cunctative palingenesis in undue retention of the cyrtocone stage.

For principles of Ammonite development see HYATT's papers in Proc. Boston Soc., 1867—1883, and especially his *Genesis Arietidæ*. There are also remarks in the Editor's Mon. Amm., especially 1905, cxcviii; and in *Schlotheimia*, Proc. Cotteswold, xv, 1906, 232; and a genealogy in Jur. Time, Quart. Journ. Geol. Soc., liv, 1898, 451.

### GEOLOGICAL DETAILS (Lias)

The Table overleaf gives the scheme of stages and zones which it is proposed to adopt in the present work for recording the positions of species in the so-called Lias rocks. Simpson's divisions of the Yorkshire strata are compared, so far as is possible from his information. There are some discrepancies between the statements in his sections and in his descriptions, but they are unimportant.

In this table the stratigraphical terms, *zone* and *stage*, have been employed. The corresponding chronological terms, *hemera* and *age*, are often more useful, particularly *hemera*. For a zone may contain species which lived during several different hemeræ, and the finding of species in a certain zone is no proof of their contemporaneity. The zone in which a specimen is found in the field and the actual date of its existence are two different observations.

The thickness of the Lias strata in Yorkshire is estimated by Simpson to be about 800 feet; but Tate & Blake (Yorkshire Lias, 1876, 194) give reasons for making the total about 1,100 feet.

There is a tradition among geologists, often repeated in text-books, that the term "Lias" originated as a word of the Somerset quarrymen—their corruption of "layers." That folk-speech is a corruption of literary speech receives in this, as in many other cases, little support from philology. Prof. Skeat, in his "Etymological Dictionary," says that the word *lias* is old in French, where it appeared as "*liais, liois*, : '*Liais*, a very hard free-stone, whereof stone-steps and tombe-stones be commonly made;' Cot. Spelt *liois* in the 13th cent. (Littré.) Perhaps from Bret. *hach*, *leach*, a stone. Cf. Gael. *leac*, a flat stone, W. *llech*."

So *lias*, according to this account, is a form of the word which occurs in place names like *Llechryd*, *Lechlade*, *Leckhampton*, *Northleach*.

Through the Celtic custom of dropping initial *p*, the words *llech*, *leac*, etc., are cognate with Greek *πλαῖς*, Latin *planca*: see Fick, "Wörterbuch," 1891.

TABLE VI—STRATIGRAPHY  
(Stages, Zones, and Yorkshire Lias Strata)

Stage	Zone	Simpson's Divisions (1884, ix—xxiii)	Stratal Terms (Yorkshire)	
YEOVILIAN	moorei		Yellow and Grey Sands.	
	Dumortieria ..			
	dispansum ..			
	struckmanni ..			
WHITBIAN	striatulum ..		Striatulus shales.	
	variabilis ..	Div. 1		
	lilli .. ..			
	braunianum ..			
	fibulatum ..			
	subcarinatum ..	Upper Lias	Alum shale.	
	pseudovatum ..			.. 2, 3, 4
	falciferum ..			.. 5a, 5b, 6
	exaratum ..			.. .. 7
	tenuicostatum ..	.. .. 8	Hard shale.	
		Jet Rock.		
		Grey shale.		
DOMERIAN	acutum .. ..	.. a — e	Ironstone Series or Kettleness Beds. Sandy micaceous Beds, or Staithes Beds, or Marlstone.	
	spinatum .. ..	.. f — g		
	margaritatum ..	.. r — v		
	algovianum ..	.. w — y		
CHARMOUTHIAN	capricornum ..	.. a — d	Ironstone Series.	
	striatum .. ..	.. e — s		
	valdani .. ..	.. t — x		
	jamesoni .. ..	.. y, z, 1		
SINEMURIAN	pettum .. ..		Lower Lias	Indurated Bands.
	armatum .. ..			
	raricostatum ..	.. 2 — 5		
	oxynotum .. ..	.. 6 — 15		
	stellare .. ..	16 — 23		
	obtusum .. ..			
birchi .. ..	[? absent]			
semicostatum ..	.. 24, 25			
gmündense ..	.. 26, 27			
HETTANGIAN <sup>1</sup>	rotiforme			
	marmorea			
	megastoma			
	planorbis			
	Ostrea beds			
	Pleuromya beds			
Modiola beds				

<sup>1</sup>In *Jur. Time, Quart. Journ. Geol. Soc.* liv, 1898, 442, it was suggested that the strata of Hettangian ought really to be reckoned as Trias.

SYSTEMATIC  
GENERIC NAMES



9. ALTERATUS,

AMMONITES

HARPOCERATOIDES

9. AMMONITES ALTERNATUS, SIMPSON  
(Plate IX)

*Original Description*

"82. A[MMONITES] ALTERNATUS. [M. SIMPSON, 1843, pp. 43, 44.]

["II. With a keel on the back.

"a. Outer whorl broad." p. 31.]

"Depressed; volutions 4 or 5, inner ones  $\frac{1}{3}$  concealed, [p. 44] sides flattened, a row of obtuse depressions near the inner margin, which is sloping, outer whorl  $\frac{2}{5}$  the diameter; radii numerous, twice bent; keel sharp, entire; aperture acutely triangular; diameter 3 inches.

This ammonite may be easily distinguished from *A. elegans*, *A. exaratus*, and others of a similar form, by the depressions upon the inner margin of the whorls, as well as by the less breadth of the outer whorl, and by its being thicker towards the back; also, where the shell remains, there may be observed very slender radii in the furrows, on which account it has received the above name. I have seen only one specimen, it was obtained by T. Crosby, from the jet rock at Hawsker Bottoms."

*Additional Details*

Simpson, 1855, pp. 86, 87, instead of last sentence has "Jet-rock; U.L." (87); 1884, pp. 123, 124, adds to first par. "U.L. 7" (124).

*Remarks*

Stages, conch, between serpenticone and oxycone; periphery, 3c; ornament, mainly 3c.

There is a septicarina; in the side view the partition-band ends where the keel is seen to begin: the rest of the keel has been broken off.

The rib-curve and other characters distinguish the species from *Harpoceras*, and make a new generic name, *Harpoceratoides*, necessary (Gen. p. ii).

*Result*

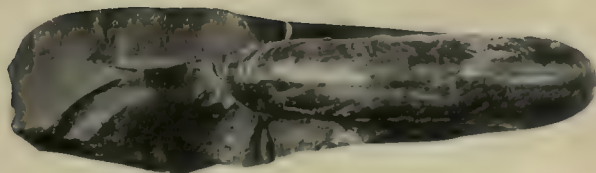
HARPOCERATOIDES ALTERNATUS, SIMPSON sp. 1843, Whitbian, *exaratum*-zone, Hawsker Bottom, near Whitby.



Fig. 1



Fig 2

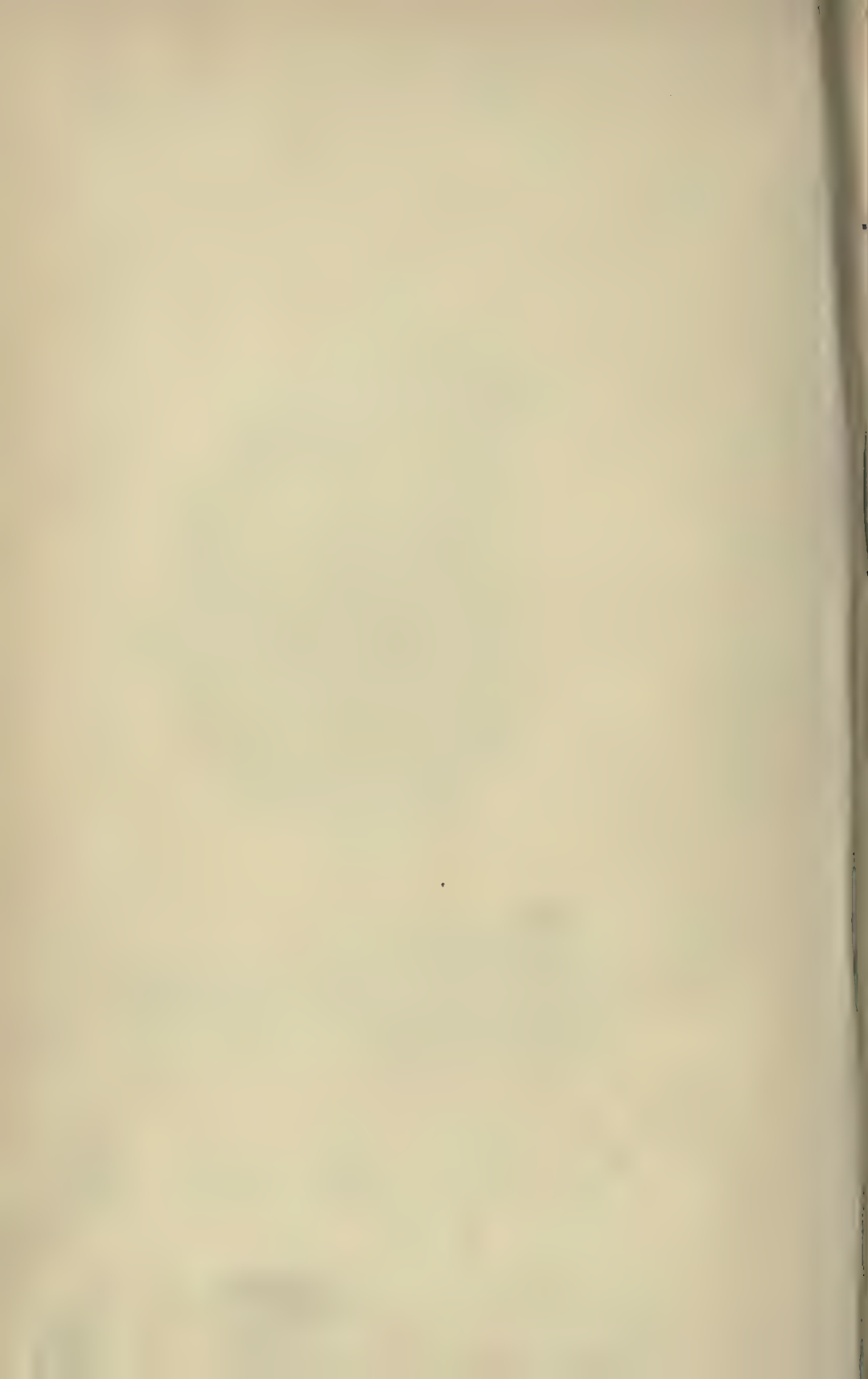


AMMONITES ALTERNATUS, SIMPSON, 1843

Whitby Museum, No. 338, Holotype

Fig. 1, Side view; Fig. 2, Apertural view, keel broken off

HARPOCERATOIDES ALTERNATUS, SIMPSON SP.



*Comparable Species*

*Am. strangewaysi*, J. Sowerby, 1820, CCLIV, 1, 3.

*Am. ovatus*, Young & Bird, 1822, XIII, 4.

*Harpoceras kisslingi*, Hug, 1898, IV, 2.



10. SUBCONCAVUS,

AMMONITES

PSEUDOLIOCERAS

10. AMMONITES SUBCONCAVUS, YOUNG & BIRD  
(Plate X)*Original Description*

[YOUNG &amp; BIRD, 1828, p. 266.]

"No. 5, Pl. XIII, also from the lias bands, very nearly coincides with *A. concavus*, Tab. 94.2, [Sowerby] having a round cavity in the centre, and ribs nearly in the shape of reaping hooks. It is, however, thicker at the back, and has the keel less prominent; and the aperture is not triangular or sagittate, but oblong quadrate. As it differs in these respects from Sowerby's shell, we may name it *A. subconcavus*."

*Additional Details*

YOUNG & BIRD, 1822, p. 251, had described this species as *A. concavus*, Sowerby (see No. 11), and figured it Pl. XIII, fig. 5, of that edition.

*Remarks*

Stages, conch becoming oxycone; periphery, 4c; ornament, 4c.

The sides of whorls are convergent from about the umbilical border; thus the aperture is really somewhat sagittate: some dislocations are answerable for YOUNG & BIRD's description, and for the appearance of the aperture now.

The septate keel is lost; there are small furrows beside it.

The genus is *Pseudolioceras*, S. Buckman, 1888, p. 81, family Hildoceratidæ.

The geological position, SIMPSON says, is "U.L. 6," (1884, 111).

*Result*

PSEUDOLIOCERAS SUBCONCAVUM, YOUNG & BIRD sp., 1828, Whitbian, *falciferum*-zone, near Whitby.



Fig. 1



Fig. 2



AMMONITES SUBCONCAVUS, YOUNG & BIRD, 1828  
Whitby Museum, No. 214, Holotype—Specimen Figd. Pl. XIII, f. 5  
Fig. 1, Side view; Fig. 2, Apertural view

PSEUDOLIOCERAS SUBCONCAVUM, YOUNG & BIRD SP.



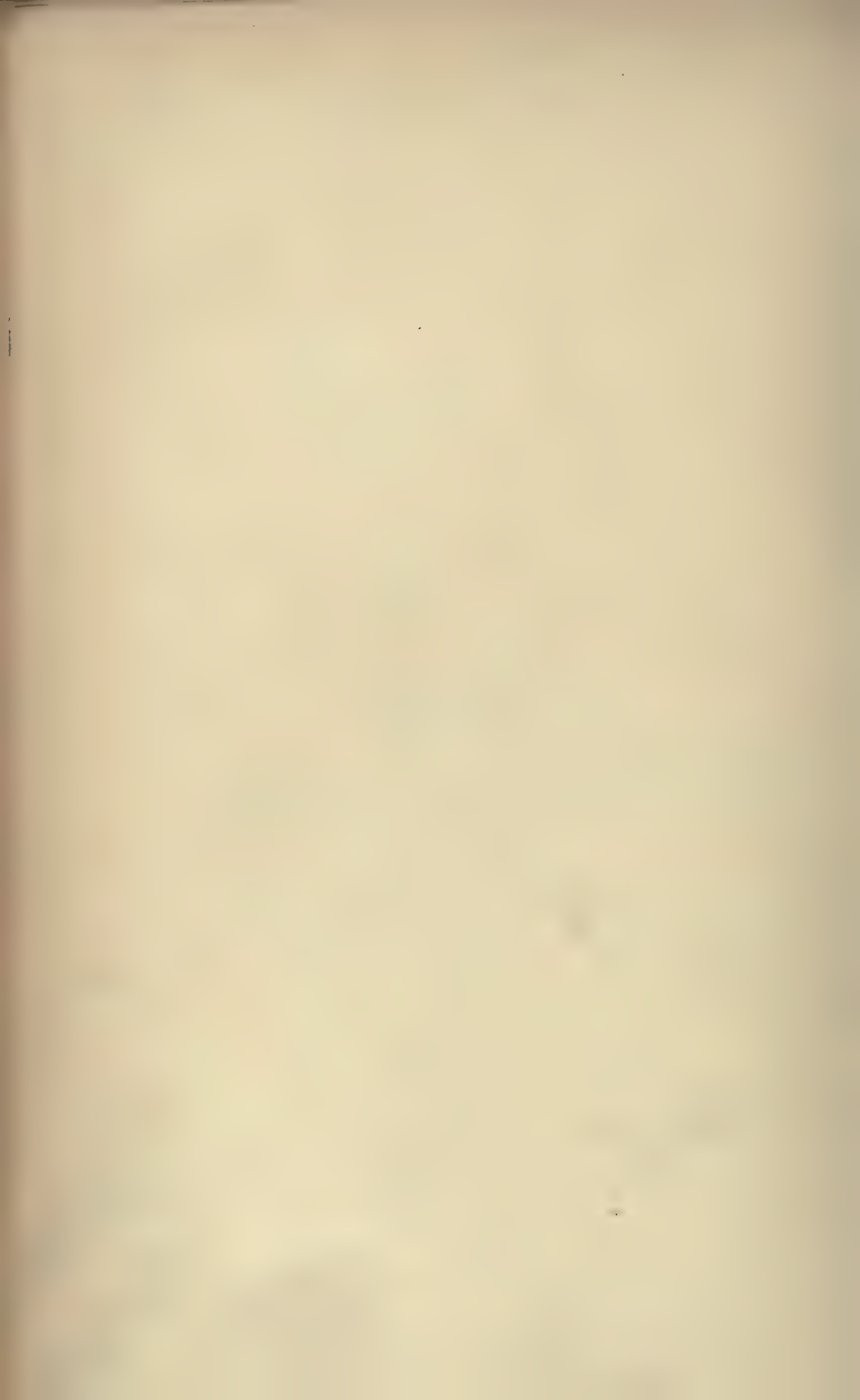
*Comparable Species*

*Harpoceras simile*; Blake, 1876, 1, 4.

*H. caecilia*; Id. 11, 6.

*H. subconcauum*; Id. VIII, 8.

And for ref. to various spp. of *Pseudolioceras*, see S. BUCKMAN, Mon., 1904, p. clviii.



11, BOULBIENSIS,

AMMONITES

PSEUDOLIOCERAS

11. AMMONITES BOULBIENSIS, YOUNG & BIRD  
(Plate XI)*Original Description*

[YOUNG &amp; BIRD, 1822, p. 252.]

"[P. 251] No. 5, Pl. XIII, also from the aluminous strata, appears to be [p. 252] a small specimen of Sowerby's *A. concavus*, Tab. 94, fig. 2. [*A. subconcavus*, 1828, see No. 10]. It has a faint spiral furrow on one side.—We have another shell with the same kind of strong waved ribs, but having the internal angles of the aperture sharp, as in No. 8 [*A. mulgravius*, No. 4]. This species, which is also from the alum shale, and which is not figured, may be named *a. Boulbiensis*.

*Additional Details*

YOUNG & BIRD, 1828, p. 267.—"To another shell [than *A. Lythensis*], of which the umbilicus, or central cavity, has sloping sides, we have given the name *A. Boulbiensis*. Its ribs are rather prominent, as in *A. subconcavus*, of which it may possibly be a variety."

*Remarks*

Stages, conch, oxycone; periphery, 3c; ornament, 3c—about subcostate, really sort of semicostate or striicostate.

The genus is *Pseudolioceras*, S. Buckman, 1888, p. 81.

The geological position, SIMPSON says, is "U.L., 1," (1884, 109).

*Result*

PSEUDOLIOCERAS BOULBIENSE, YOUNG & BIRD sp., 1822, Whitbian, [perhaps *braunianum*-zone], near Whitby.



Fig 1

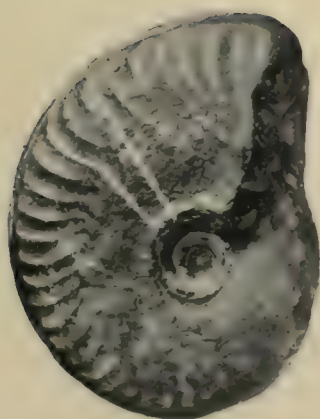


Fig 2



AMMONITES BOULBIENSIS, YOUNG & BIRD, 1822  
Whitby Museum, No. 213, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view

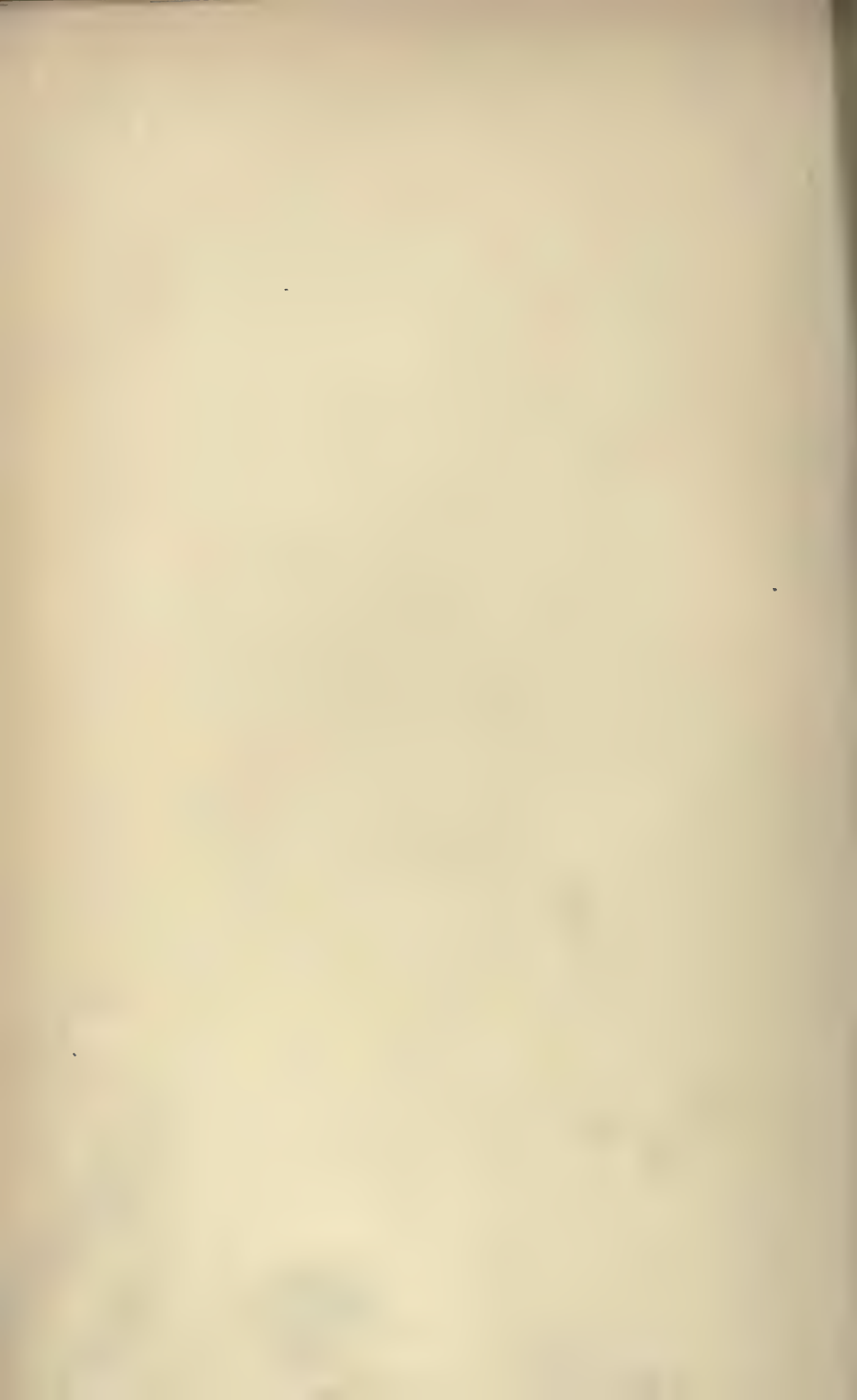


*Comparable Species*

*Harpoceras compactilie*; Blake, 1876, VIII, 6.

*Am. württenbergeri*, Denckmann, 1887, i, 1; IV, 7.

And see Nos. 10, 13.



12. LEVISONI,

AMMONITES

HILDOCERAS

## 12. AMMONITES LEVISONI, SIMPSON (Plate XII)

### Original Description

"105. A[mmonites] Levisoni. [M. SIMPSON, 1843, p. 54.]  
["III. Keel between two furrows," p. 48.  
"b. Furrows distinct." p. 50.]

"This ammonite much resembles the last [*A. walcottii*, Sow., *A. hildensis*, Young & Bird], of which it may possibly be only a variety; the sides of the whorls are more rounded, the inner margin more depressed, and the groove on the side is wanting; the radii also are finer and more numerous, and commence at or near the inner margin of the whorl: the shell is thin, smooth, and shining; the keel is sharp, and it has altogether a much more elegant appearance than the last: it occurs in the marlstone and ironstone series. I have named this ammonite in remembrance of my mineralogical friend, Mr. Levison, whose friendship for all lovers of science is warm and disinterested."

### Additional Details

SIMPSON, 1855, pp. 99, 100.—"184. LEVISONI, *Simp.*—Volutions 5, inner ones but [p. 100] little concealed, outer whorl  $\frac{1}{3}$  the diameter, inner edge rounded; radii sigmoidal, obtuse, equal to the intervening concave spaces; keel entire, furrow on either side distinct; aperture ovate; diameter  $1\frac{1}{4}$  inches."

SIMPSON, 1884, p. 140, the same.

### Remarks

Stages, conch, serpenticone; periphery, 4; ornament, 4c.

The carina appears to be non-septate; the ribs run more or less distinctly across sloping inner margin from contact line; they are some times almost connate in inner whorls.

The genus is *Hildoceras*, Hyatt, 1867—family Hildoceratidæ. The geological position is, in spite of what Simpson says, probably the Hard Shale. BLAKE (1876, 307) assigns it to his *serpentinum* zone; but his identification of the species is not to be trusted, nor are others. Simpson's phrase, "radii commence at or near inner margin," was misleading: it is only partially correct, unless, as is likely, he meant in this case the line of contact.

### Result

HILDOCERAS LEVISONI, SIMPSON sp., 1843, Whitbian [*falciferum* zone?], near Whitby.



Fig. 1



Fig. 2



AMMONITES LEVISONI, SIMPSON, 1843  
Whitby Museum, No. 310, Holotype  
Fig. 1, Side view; Fig. 2, Peripheral view



*Comparable Species*

*Argonauta serpentinus*, Reinecke, 1818, figs. 74, 75.

*Am. borealis*, Seebach, 1864, VII, 5.

*Am. serpentinus*; Meneghini, 1867, III, 1.

*Am. serpentinus*; Quenstedt, 1885, XLIV, 5, 6.

*Hildoceras serpentinum*; S. Buckman, 1889, p. 201, figd. in C.

Thompson, Naturalist, 1909, XIII, bottom fig.



13. LYTHIENSIS,  
AMMONITES  
PSEUDOLIOCERAS

13. AMMONITES LYTHENSIS, YOUNG & BIRD  
(Plate XIII)

*Original Description*

[YOUNG & BIRD, 1828, pp. 266, 267.]

"Another species, larger than the last [*A. impendens*], but smaller than *A. Mulgravius*, has like it sigmoidal ribs, but less regular, and less curved. A very small part of the inner whirls is displayed, and the interior edge [p. 267] of each whirl being rectangular, the central part appears like a small round pit, with perpendicular sides. To this species we have given the name *A. Lythensis*."

*Remarks*

Stages, conch, oxycone; periphery, 3c; ornament, 4c.

There is a septicarina, which is not prominent: the partition-band is set on a rounded periphery, but the mark of the band is not very plain: it can be seen in lower part of fig. 2.

Genus *Pseudolioceras*, S. Buckman, 1888, 81,—family Hildoceratidæ.

Geological position according to SIMPSON, Alum shale, Upper Lias (1), Peak (1884, 109).

*Result*

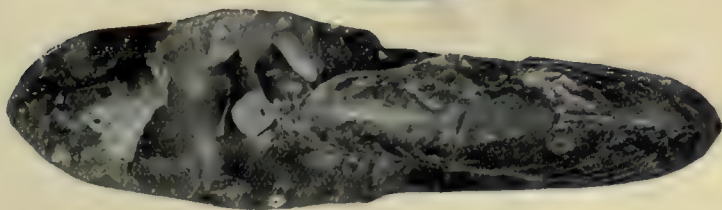
PSEUDOLIOCERAS LYTHENSE, YOUNG & BIRD sp., 1828, Whitbian [probably *braunianum*-zone], near Whitby.



Fig. 1



Fig. 2



AMMONITES LYTHENSIS, YOUNG & BIRD, 1828  
Whitby Museum, No. 208, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view; both  $\times 0.92$

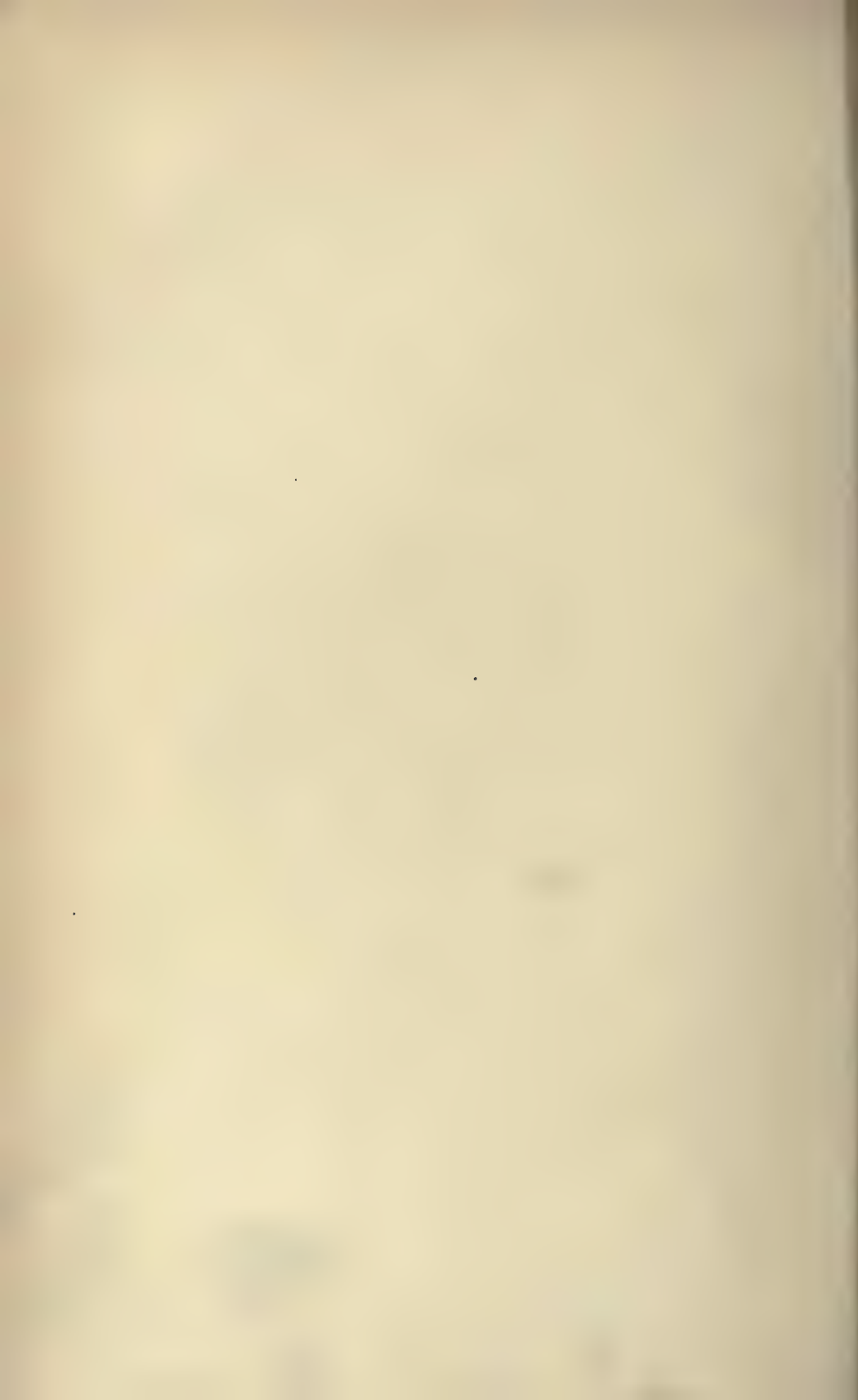
PSEUDOLIOCERAS LYTHENSE, YOUNG & BIRD SP.



*Comparable Species*

- Am. exaratus* ; Phillips, 1829, XIII, 7.  
*Am. concavus* ; d'Orbigny, 1845, CXVI.  
*Am. compactilis*, Simpson, 1855, 75.  
*Am. beyrichi*, Schläenbach, 1865, XXVII, 4, 5.  
*Harpoceras lythense* ; Blake, 1876, II, 4.  
*H. compactilis* ; Id., VIII, 6.  
*H. lythense* ; Wright, 1882, LXII, 4-6.  
*Am. lythensis* ; Quenstedt, 1885, XLIII, 3.  
*Am. lythensis falcatus* ; Id., XLIII, I.

And see Nos. 10, 11.



14. RUDIS,

AMMONITES

DENCKMANNIA

14. AMMONITES RUDIS, SIMPSON  
(Plate XIV)

*Original Description*

"83. A[mmonites] rudis. [M. SIMPSON, 1843, p. 44.]

["II. With a keel on the back." p. 31.

"b. Outer whorl narrower." p. 44.]

"Depressed; volutions 4 or 5, inner ones  $\frac{1}{8}$  concealed; radii strong, straight, then turn towards the aperture, equal to the concave spaces between; aperture roundish; diameter,  $2\frac{1}{4}$  inches."

"This is an extremely rugged shell; the outer whorls are only slightly indented by the succeeding ones. Near the inner margin of the whorls are coarse irregular swellings, from whence proceed two radii, which are occasionally separated by other radii, but with the greatest irregularity. I have seen only one specimen, the shell of which is thick, the keel is broken off, and the siphuncle is well displayed."

*Additional Details*

SIMPSON, 1855, 87, the same; 1884, 124, adds "U. L."

*Remarks*

Stages, conch, serpenticone; periphery, 4c; ornament, 5.

The degree of tuberculation, the irregularity and coarseness of costation, place this species between *Am. robustus*, Denckmann, and *Am. malagma*, Dumortier (I, A, B,  $\gamma$  — S. BUCKMAN, Mon., p. x); so it falls into the genus *Denckmannia*, S. Buckman (Id. xvii). The slightly flexed character of ribbing noticed for this division of *Denckmannia* is a feature of a later stage of growth than the present specimen shows.

*Result*

DENCKMANNIA RUDIS, SIMPSON sp., 1843, Whitbian [*variabilis*-zone], near Whitby.



Fig. 2



Fig. 1



AMMONITES RUDIS, SIMPSON, 1843  
Whitby Museum, No. 251, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view, septicarium broken off

DENCKMANNIA RUDIS, SIMPSON SP.



*Comparable Species*

*Am. malagma*, Dumortier, 1874, XXII, 1—some slight differences.

*Am. robustus*, Denckmann, 1887, VII, 1.

*Denckmannia*? *malagma*; S. Buckman, 1898, IV, 1,—exact agreement in proportions, almost exact in ornament.

*D. tumefacta*, Id., 1, 7-10,—is much more regular in its style of ornament, has a smaller umbilicus and stouter whorls.



15. BEANII,

AMMONITES

HAUGIA.

15. AMMONITES BEANII, SIMPSON  
(Plate XV)

*Original Description*

"65. A[mmonites] Beanii. [M. SIMPSON, 1843, p. 36.]

"[ II. With a keel on the back."

"a. Outer whorl broad." p. 31.]

"Depressed; volutions 4 or 5, inner ones much concealed, outer whorl nearly  $\frac{1}{2}$  the diameter, sides flattish, with a row of tubercles along the inner margin; radii twice bent; aperture ovate; diameter 4 inches.

"This may be readily distinguished from the rest, which have sigmoidal radii, by the row of tubercles on the inner margin of the whorl. I have named it in honour of my friend Mr. W. Bean, of Scarborough, who has long been distinguished as an ardent lover of natural science, and whose indefatigable labours have brought to light a great many interesting fossils of the Yorkshire Coast. I believe it to be from some bed near the jet rock."

*Additional Details*

SIMPSON, 1855, 77, instead of last sentence adds a description of another specimen; 1884, 113, the same, but adds "U. L., 1, Peak."

*Remarks*

Stages, conch, oxycone; periphery, 3c; ornament, 5. The partition-band (fig. 2) indicates a strong, high septicarina.

The combination of such a carina with flexiradii is found in *Am. illustris*, Denckmann, provisionally attributed to *Haugia*, (S. Buckman, Mon., p. xi, and 1888, 45).

The geological position is, presumably, just below the *striatulus*-shales. The fragment of a small specimen attached is comparable with *Brodiceras curvum*, S. Buckman, 1898, xxxii.

*Result*

HAUGIA BEANII, SIMPSON sp., 1843, Whitbian [*variabilis*-zone], Peak, near Whitby.



Fig. 1

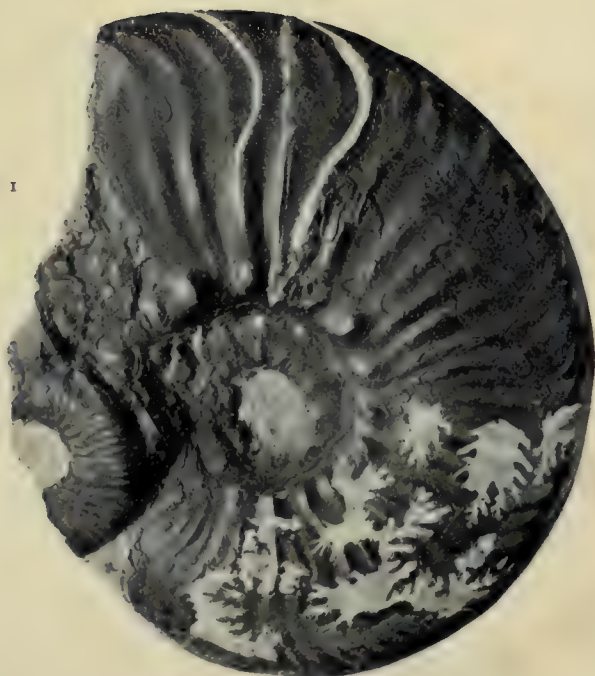
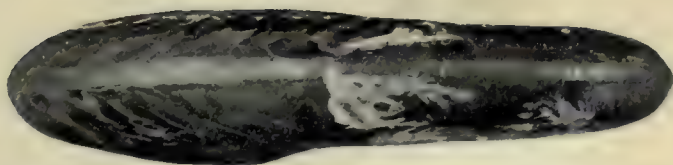


Fig. 2



AMMONITES BEANII, SIMPSON, 1843  
Whitby Museum, No. 291, Holotype

Fig. 1, Side view; Fig. 2, Peripheral view, septicarina broken off

HAUGIA BEANII, SIMPSON SP.



*Comparable Species*

*Am. illustris*, Denckmann, 1887, VI, 1; V, 2.

*Harpoceras variabilis*; Wright, 1882, LXVIII, which is type of *Denckmannia aspera*, S. Buckman, 1898, p. xxi.

*D. torquata*, Id., 1898, III, 4-6.

*D. oblecta*, Id., 1898, IV, 4-6.

16. AMMONITES AMBIGUUS, SIMPSON  
(Plate XVI)

*Original Description*

"3. A[mmonites] ambiguus. [M. SIMPSON, 1843, p. 8.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Much depressed; volutions 4, inner ones  $\frac{1}{10}$  concealed, outer whorl more than half the diameter; radii twice bent, numerous, faint; aperture ovate; diameter  $2\frac{1}{2}$  inches.

This differs from the next [A. erratus] in the faintness of the radii, and in the regular convexity of the sides of the whorls; it is also thinner near the back, and the upper edge of the inner margin of the whorl projects over the inner one. The markings on the shell, which is very thin, differ very little from those on the cast. The striæ bend in the same direction as the radii. I believe it to be from the lower lias. Another specimen I obtained from the lower beds of Marlstone at Robin Hood's Bay."

*Additional Details*

SIMPSON, 1855, p. 36,—instead of second par. has, "The markings on the shell, which is very thin, differ very little from those on the cast. L. L.—R. H. Bay." SIMPSON, 1884, p. 64, describes the shell as "*A. loscombei*, Sow.," and says, "L. L., *w*, R. H. Bay, Huntcliff," but enters *A. loscombei* in t in p. xx.

*Remarks*

Stages, conch, oxycone; periphery, 2(c?); ornament, 2c.

There is no true carina, but a sharpened periphery crossed by small ribs, having therefore a crenulate appearance. There are signs of phylliform septation.

Genus, *Rhacoceras*, Agassiz, in Hyatt, 1867, 86.

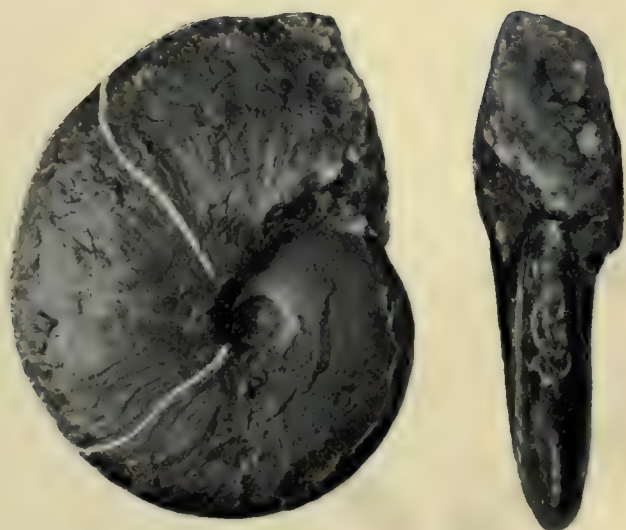
Geological position, *w* = *capricornum* zone, t = *valdani* zone: *A. loscombei*-like forms have this range, but the higher zone (*w*) seems most probable in this case.

*Result*

RHACOCERAS AMBIGUUM, SIMPSON sp., 1843, Charmouthian [*capricornum*-zone?], Robin Hood's Bay, near Whitby.

Fig. 1

Fig. 2



AMMONITES AMBIGUUS, SIMPSON, 1843  
Whitby Museum, No. 89, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view

RHACOCERAS AMBIGUUM, SIMPSON SP.



*Comparable Species*

*Am. loscombei*, J. Sowerby, 1817, CLXXXIII.

*Am. loscombei*; d'Orbigny, 1844, LXXV, I, 2.

*Phylloceras loscombei*; Wright, 1880, XL, 4, 5,—a species much stouter than Sowerby's.

*P. paucicostatum*, Pompeckj, 1893, III, 2.





17. BELCHERI,  
AMMONITES  
CALOCERAS

17. AMMONITES BELCHERI, SIMPSON  
(Plate XVII)

*Original Description*

"13. A[mmonites] Belcheri. [M. SIMPSON, 1843, p. 12.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Depressed; volutions 6 or 7, exposed, rather flat on the sides, back rounded; radii straight, prominent, obsolete on the back, separated by concave spaces; aperture squarish; diameter,  $1\frac{1}{2}$  inch.

"The smoothness and elegance of this beautiful shell reminds me of the politeness and urbanity of H. Belcher, Esq., President of the Whitby Philosophical Society, whose love for natural science, also, entitles him to a grateful remembrance. It is from the lower Lias, and may be readily distinguished from *A. gagateus* and others by the smooth back."

*Additional Details*

SIMPSON, 1855, p. 43, omits "depressed," adds, after "prominent," "obtuse," has, instead of second par., "A cast, L. L.; R. H. Bay [Lower Lias, Robin Hood's Bay]"; 1884, p. 72, adds after name, "Pal., pl. xv., f. 7" [Wright's, Mon. Lias Amm.].

*Remarks*

Stages, conch, serpenticoncave; periphery, 1; ornament, 4.

The inner whorls up to about 5 mm. diameter are smooth; there is just the slightest sign of angulation of the periphery, and across it, in a strong light, can be seen very small ribs and intermediate striæ, with forward bends. The body chamber is half of the last whorl. Though Simpson says the specimen is a cast, yet there is a thin film of test on the air-chambers, obscuring the suture-lines. The pattern can only be followed approximately. It is simple, like that given by d'Orbigny for *A. torus*, with oblique L<sup>2</sup>, L<sup>3</sup>: the EL is slightly displaced.

Genus, *Caloceras*, Hyatt, 1870, 29,—family Caloceratidæ, S. Buckman, 1906, 233. The geological position would be just above the *planorbis*-zone.

*Result*

CALOCERAS BELCHERI, SIMPSON sp., 1843, Hettangian [*megastoma*-zone], Robin Hood's Bay, near Whitby.

Fig. 1



Fig 2

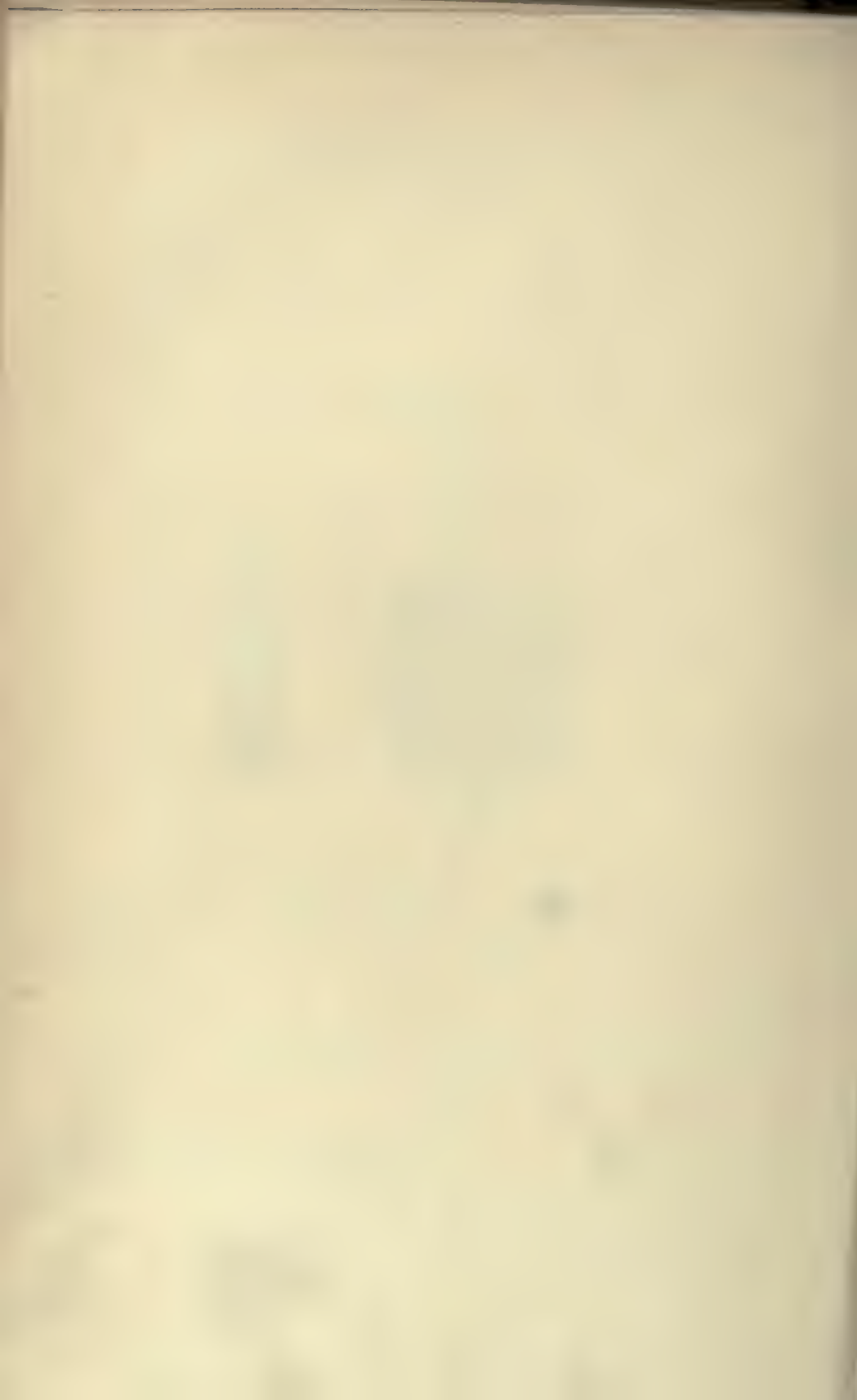


Fig. 3



AMMONITES BELCHERI, SIMPSON, 1843  
Whitby Museum, No. 101, Holotype ; Fig. 1, Side view ; Fig. 2, Aper-  
tural view ; Fig. 3, Approximate delineation of suture line,  $\times 4$ .

CALOCERAS BELCHERI, SIMPSON SP.



*Comparable Species*

*Am. johnstonii*, J. de C. Sowerby, 1824, CCCCXLIX, 1.

*Am. intermedius*, Portlock, 1843, p. 137, fig. 17.

*Am. torus*, d'Orbigny, 1844, LIII.

*Egoceras belcheri*; Wright, 1879, xv, 7, 8; 1880, xix, 1, 2.

*Eg. torus*; Id., 1880, xix, 3, 4.

*Arietites orthoptychus*, Wähner, 1886, xxvii, 2.





18. CONVOLUTUS,  
AMMONITES  
CALOCERAS

18. AMMONITES CONVOLUTUS, SIMPSON  
(Plate XVIII)

*Original Description*

"29. A[mmonites] convolutus. [M. SIMPSON, 1855, p. 43.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 35].

"Volutions 5, exposed; radii strong, waving, rather obliquely inclined towards the aperture, obsolete on the back and inner whorls; aperture round; diameter six-tenths in.—L.L., R. H. Bay [Lower Lias, Robin Hood's Bay]"—[SIMPSON, 1884, p. 73, practically the same].

*Remarks*

Stages, conch, serpenticoncave; periphery, 1, almost 2; ornament, 4. Inner whorls smooth to about 4mm. diam., periphery almost angulate, crossed by forwardly arched ribs and striae—all very faint. Suture line apparently like that of *A. belcheri* [xvii, 3], but difficult to follow.

Genus, *Caloceras*, Hyatt, 1870, 29; and family Caloceratidæ.

Geological position presumably just above *planorbis*-zone.

*Result*

CALOCERAS CONVOLUTUM, SIMPSON sp., 1855, Hettangian, [*megastoma* zone?], Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



AMMONITES CONVOLUTUS, SIMPSON, 1855  
Whitby Museum, No. 491, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view ; both  $\times 1.5$

CALOCERAS CONVOLUTUM, SIMPSON SP.



*Comparable Species*

*Am. psilnotus plicatus*, Quenstedt, 1852, xxvii, 6; 1883, 1, 13.

*Arietites semicostulatus*; Wähner, 1886, xxvii, 10-12.

And see 17c; but the forward directed ribs (prorsiradii) of *A. convolutus* are its distinction.

19. AMMONITES EXORTUS, SIMPSON  
(Plate XIX)

*Original Description*

"31. A[mmonites] exortus. [M. SIMPSON, 1855, p. 44.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 35.]

"Volutions 5, exposed, outer whorl more than  $\frac{1}{4}$  the diameter; radii prominent, strong, annular, separated by concave spaces; aperture subquadrate; diameter, 1 inch and three-tenths.

"The aperture is nearly square, and on the outer angles of the whorls the radii, in places, have slight tubercles. Mr. Clarkson's Col. L.L.; R. H. Bay [Lower Lias, Robin Hood's Bay]." [SIMPSON, 1884, 73—the same.]

*Remarks*

Stages, conch, serpenticones; periphery, 1; ornament, 4, passing to 5.

Genus, *Echioceras*, Bayle, 1878; and in family arrangement *Echioceras* should, perhaps, stand as a forerunner of the Hildoceratidæ. This species shows the stage of phylogeny in *Echioceras* before the development of the carina—the ornament has attained stage 5 before carina appears.

Geological position would be, presumably, about Indurated Band 13.

Of the specimens figured (Whitby Museum, No. 645), the larger one, though slightly less than Simpson's dimensions, is reasonably concluded to be his holotype; the other a paratype.

*Result*

ECHIOCERAS EXORTUM, SIMPSON sp., 1855, Sinemurian [*oxynotum* zone?], Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



Fig. 3



AMMONITES EXORTUS, SIMPSON, 1855  
Whitby Museum, No. 645; Fig. 1, Side view (of Holotype ?); Fig. 2,  
Side view of a Paratype; Fig. 3, Peripheral view of the same





*Comparable Species*

*Am. raricostatus*, Zieten, 1831, XIII, 4.

*Echioceras raricostatum*; Bayle, 1878, LXXVII, 2, 3.

*Am. raricostatus microdiscus*, Quenstedt, 1884, XXIV, 6.



20. LENTICULARIS,

AMMONITES

AMALTHEUS

20. AMMONITES LENTICULARIS, YOUNG & BIRD  
(Plate XX)

*Original Description*

[YOUNG & BIRD, 1828, p. 269.]

"The last shell of this family [thin discoid ammonites, with sharp keels] which we shall name is more lenticular than any that we have seen. The exterior part of the whirl runs to a thin edge, plain or very faintly crenated; the sides are smooth, or marked with very faint undulating lines; the central part is an umbilicus, with upright sides, the inner whirls being scarcely visible; and the aperture forms a triangle, of which the outer angle is extremely acute, owing to the thinness of the edge. This rare species, found in the lias bands, may fitly be termed *A. lenticularis*."

*Remarks*

Stages, conch, oxycone; periphery, 2c; ornament, 1c.

A few small portions of complicated suture-lines are to be seen: they show narrow-stemmed lobes, the laterals tridactyloid. There is general agreement with the suture-line of *Amaltheus* (Quart. Journ. Geol. Soc., 1889, xlv, 4, 5); shape and indications of a crenulate keel agree with that; but the very slight projection of the radial line on the periphery and the comparative smoothness of test are against *Amaltheus*. If it be an *Amaltheus*, it is a very catagenetic form.

Its geological position is Middle Lias *e* (SIMPSON, 1884, 115).

*Result*

AMALTHEUS LENTICULARIS, YOUNG & BIRD sp., 1828, Domerian, *spinatum* zone, near Whitby.

Fig. 1

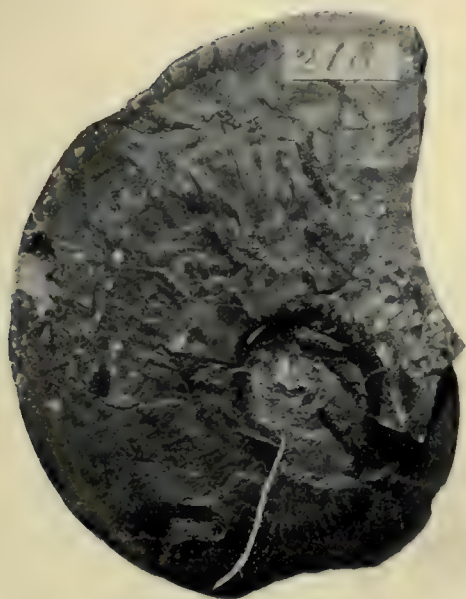


Fig. 2



AMMONITES LENTICULARIS, YOUNG & BIRD, 1828  
Whitby Museum, No. 218, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view





*Comparable Species*

*Ammonites amaltheus lævis*, Quenstedt, 1858, xx, 5 ; 1885, XLIII, 1-5.

*Amaltheus ferrugineus* ; Blake, 1876, VII, 5.

*A. lenticularis* ; Wright, 1884, LXXXII, 14, 15.

*A. margaritatus* var. *lævis* ; Geyer, 1893, III, 20.

And see *A. reticularis*, No. 1c.



21. IGNOTUS,

AMMONITES

UPTONIA

21. AMMONITES IGNOTUS, SIMPSON  
(Plate XXI)

*Original Description*

"82. A[mmonites] ignotus. [M. SIMPSON, 1855, p. 61.]

["I. Without a dorsal keel or furrow." p. 35.

"b. Armed with spines or distinct tubercles." p. 58.]

"Volutions nearly  $\frac{1}{4}$  concealed, outer whorl nearly  $\frac{1}{3}$  the diameter, sides flattish; radii numerous, obtuse, equal to the intervening concave spaces, slightly curved towards the aperture, form a row of tubercles on the outer margin of the whorl, then pass undivided over the rounded back; aperture elliptical; diameter  $2\frac{1}{2}$  inches. Inner whorls imperfect. —L.L.; R.H. Bay. Mr. Ripley's Col."

*Additional Details*

SIMPSON, 1855, p. 94.—"L.L., y, R.H. Bay"; omits rest of the second par.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 5\*.

Genus *Uptonia*, S. Buckman, 1898, 453,—family Polymorphidæ.

*Result*

UPTONIA IGNOTA, SIMPSON sp., 1855, Charmouthian, *jamesoni*-zone, Robin Hood's Bay, near Whitby.

Fig. 2



Fig. 1



AMMONITES IGNOTUS, SIMPSON, 1855  
Whitby Museum, No. 159, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

*Am. jamesoni*; Quenstedt, 1884, xxxi, 6-8.

*Am. jamesoni costosus*, Id., xxxi, 12.

*Am. jamesoni*; Haug, 1887, v, 1; and suture line, p. 125, fig. 4: portions of EL and L<sup>1</sup> visible on the specimen appear similar, but less developed.

And see *A. ripleyi*, No. 2c.





22. ELABORATUS,

AMMONITES

PALTOPLEUROCERAS

22. AMMONITES ELABORATUS, SIMPSON  
(Plate XXII)

*Original Description*

"168. A[mmonites] elaboratus. [M. SIMPSON, 1884, p. 128.]

["III. *Keel between two furrows.*

"(a.) *Furrows slight.*" p. 127].

"Depressed; volutions six, exposed, prominent on the rounded inner margin, outer whorl less than one-third the diameter, pinched towards the back; radii strong, sharp, regular, tending to form tubercles on both margins, suddenly turn towards the aperture on the back, separated by deep concave grooves; keel much depressed, sharp, smooth; aperture quadrate; diameter, two inches. M. L., a, Hawsker.

"This belongs to the *A. spinatus* family, and is from the uppermost bed of the Middle Lias on the Hawsker shore. It is highly finished and well distinguished from *A. solitarius* by the prominence of the inner margin of the whorls and the smooth keel. From the ribs rising on both margins a slight hollow or groove is formed along the side of the whorl. Whitby Museum, No. 302."

*Remarks*

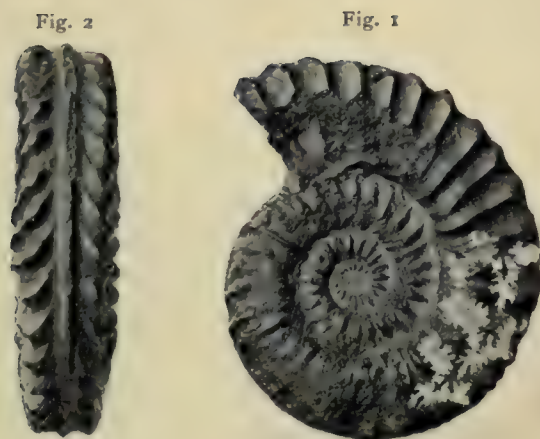
Stages, conch, serpenticone; periphery, 5; ornament, 5\*\*\*.

The carina is slightly crenulate; the radii run far forward to join the carina; on the edge of the periphery they are almost tubercled (bullate); on outer edge of margin, just before, is a papilla on each rib; and towards inner edge another bullate swelling—so that the ornament is really 5\*\*\*.

Genus, *Paltoleuroceras*, S. Buckman, 1898, 453,—family Amaltheidæ.

*Result*

*PALTOLEUROCERAS ELABORATUM*, SIMPSON sp., 1884, Domerian, *spinatum* zone, Hawsker, near Whitby.



AMMONITES ELABORATUS, SIMPSON, 1884  
Whitby Museum, No. 302, Holotype  
Fig. 1, Side view; Fig. 2, Peripheral view



*Comparable Species*

*Am. vittatus* ; Phillips, 1829, XIII, 1.

*Am. costatus spinatus*, Quenstedt, 1849, v, 10 ; 1857, XXI, 1, 2 ;  
these figs. re-named *Pleuroceras pseudo-spinatum*, Hyatt, 1867, 90.

*Am. costatus spinatus* ; Quenstedt, 1885, XLII, 25, 27.





# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.,

AUTHOR OF

“A MONOGRAPH OF INFERIOR OOLITE AMMONITES, 1887-1907”

The Original descriptions reprinted, and illustrated by figures of the types,  
reproduced from photographs mainly by

J. W. TUTCHER

## Part III

Pages *iii—vi*,

9 Plates, and Descriptions Nos. 23—30

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CHELTENHAM

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ST. GEORGE'S HALL

Genus, ANDROGYNOCERAS, HYATT, 1867

1867, Foss. Ceph. ; Bull. Mus. Comp. Zool., V, 83.

There are two species quoted ; but it is advisable to take as the genotype the one figured, which is *Am. hybrida*, d'Orbigny.

Result

Genus, ANDROGYNOCERAS, HYATT, 1867. Genoelectotype, *Am. hybrida*, d'Orbigny.

Genus, LIPAROCERAS, HYATT, 1867

1867, Foss. Ceph. ; Bull. Mus. Comp. Zool., V, 83, 84.

Three species are quoted in their order of sphæroconic development. *L. indecisum*, Hyatt, is not figured ; *L. henleyi* and *L. bechei* both contain different forms. *A. henleyi* and *A. bechei*, Sowerby, are probably the less and more involute forms of *Androgynoceras*. Choice may then fall on what Hyatt quotes as *A. henleyi*, Bronn (Leth. geogn. 1838, XXIII, 7) which Bronn calls *A. striatus*, a copy of Zieten, 1830, v, 6.

*Liparoceras* thus expresses the coarsely ornate, more tumid whorled species, and *Androgynoceras* the less ornate, more compressed.

Result

Genus, LIPAROCERAS, HYATT, 1867. Genoelectotype, *A. henleyi*, Hyatt pars = *A. striatus*, Bronn, 1838, XXIII, 7.

Genus, ÆGOCERAS, WAAGEN, 1869

1869, Form. *Am. subradiatus* ; Geogn.-Pal. Beitr., II (2) 247.

As the name was proposed for the capricorns, the etymology, *Ægoceras* = *capricornus*, indicates *A. capricornus* as the type. HAUG (Rev. crit. Pal. 1900, 82) confirms. But *A. capricornus*, auctt., covers many species, and what is exactly Schlotheim's species is very doubtful.

*A. planicosta* ; d'Orbigny (non Sowerby) 1844, LXV, recognised in Waagen's time (OPPEL, Juraf. 156) as *A. capricornus*, is a good figure to select for *A. capricornus*, auctt.

The capricorn stage is passed through by the last two genera before bituberculation ; but there is a capricorn fauna later than many of their bituberculate (sphærocone) species, indicating either cunctative palingenesis (p. vii) of the costate stage, or survival of the less modified. *Ægoceras*, then, may deserve generic rank as a separate stock, and it may develop sphærocones of its own, (*A. nautiliformis*, No. 37).

Result

Genus, ÆGOCERAS, WAAGEN, 1869. Type, *A. capricornus* ; Waagen et auctt., of which *A. planicosta* ; d'Orbigny, LXV, I, 2, = *A. capricornus*, auctt. pars, is genoelectotype.

Genus, OISTOCERAS, nov.

Type, *A. figulinus*, Simpson, No. 26

A capricorn series which develops forward pointing (arrow like) peripheral costæ (*διστός*, an arrow). A bituberculate stage developing thickened whorls is produced ; but no sphærocones are known.

These four genera, with others, belong to Hyatt's family Liparoceratidæ, distinguished from Deroceratidæ by simpler suture line without recurved inner lobes.

Genus, DEROCERAS, HYATT, 1867

1867, Foss. Ceph. ; Bull. Mus. Comp. Zool., V, 81, 84, 85, 94.

The species included by Hyatt belong to three groups—*planicosta* (*A. ziphus*), *armatus*, *subarmatus*.

S. BUCKMAN (Q.J. Geol. Soc. LIV, 1898, 460) put *A. armatus* for type of *Deroceras*, and separated the *planicosta* series as lacking a name : *A. subarmatus* is a Dactyloid.

#### Result

Genus, DEROCERAS, Hyatt, 1867. Genoelectotype, *A. armatus*, J. Sowerby.

Genus, XIPHEROCERAS, nov.

Type, *Ægoceras planicosta* ; Wright, 1880, xxv = *A. ziphus*, Zieten.

The *planicosta-ziphus* series of the *armati* : they are anagenetic to 5\*\* (*A. scoresbyi*, Simpson) ; *Deroceras* is catagenetic or post 5\*\*. *Microderoceras* is earlier and has a more complex suture line. *Ξιφήρης*, armed with a sword : *ziphus* is evidently a mistake for *xiphus* = *ξίφος*, a sword.

Genus, CÆLOCERAS, HYATT, 1867

1867, Foss. Ceph. ; Bull. Mus. Comp. Zool., V, 87, 94.

Of the species mentioned by Hyatt, *A. pettos*, Quenstedt, was selected as genotype by S. BUCKMAN, Geol. Soc. LIV, 1898, 454.

The Charmouthian species have cylindriciform whorls, cratermubilicus, and broad, little costate periphery. Whether certain similar shaped Domerian and Whitbian species which have well costated venters are descendants, or are inflated Dactyliocerates, or have passed through the fibulate stage, is not always certain ; but till ontogenetic details are better known they may be ranged here. Thus *Cæloceras* = stout-whorled Dactyloids.

#### Result

Genus, CÆLOCERAS, HYATT, 1867. Genoelectotype, *A. pettos*, Quenstedt, Jura, XVI, 14.

## Genus, DACTYLIOCERAS, HYATT, 1867

1867, Foss. Ceph.; Bull. Mus. Comp. Zool., V, 95.

Hyatt did not choose a type but he indicated it—*δακτύλιος* = *annulus*; so that one of the species with *annulus* in its name should be the type. There is *Nautilus annularis*, Reinecke, and *Am. annulatus*, Sowerby, given by Hyatt: the former is a misidentification, as it happens to be a young *Peltoceras*, therefore the latter may be chosen. OPPEL selected as the type of the latter Sowerby's fig. 5, of Pl. CCXXII (Juraf. 255).

*Dactylioceras* = compressed annulate Dactyloids which did not develop fibulation.

## Result

Genus, DACTYLIOCERAS, HYATT, 1867. Genolectotype, *A. annulatus*, J. Sowerby, 1818, CCXXII, 5.

## Genus, PERONOCERAS, HYATT, 1867

1867, Foss. Ceph.; Bull. Mus. Comp. Zool., V, 85.

The type is definitely indicated—*περόνη* = *fibula*, a buckle, whence *Am. fibulatus*. For this only one citation is given.

*Peronoceras* is a branch of *Dactylioceras* which develops button & loop ornament (fibulation). Thus *Peronoceras* = compressed, fibulate Dactyloids. In catagenesis the *Dactylioceras* pattern is revived, with fibulation only a neanic feature, often obscure.

## Result

Genus, PERONOCERAS, HYATT, 1867. Genoholotype *A. fibulatus*, J. de C. Sowerby.

## Genus, PORPOCERAS, nov.

Type, *Am. vortex*, Simpson, No. 29

This genus is proposed for the strongly ornamented, massive, fibulate Dactyloids—*πέρονη*, a buckle.

## Genus, ASTEROCERAS, HYATT, 1867

1867, Foss. Ceph.; Bull. Mus. Comp. Zool., V, 79, 80.

The genotype species is definitely indicated by the meaning of the name *Asteroceras*—*ἀστήρ* = *stella*, whence *Am. stellaris*. Hyatt gives three citations under that: as he mentions English specimens, *Am. stellaris*, Sowerby, is taken as the type.

## Result

Genus, ASTEROCERAS, HYATT, 1867. Genolectotype, *Am. stellaris*, J. Sowerby.



## Genus, CORONICERAS, HYATT, 1867

1867, Foss. Ceph.; Bull. Mus. Comp. Zool., V, 77.

The genoholotype is definitely indicated by the name—*Coroniceras* for *Am. coronaries*, for which is cited Quenstedt, Jura, VII, 5.

*Result*

Genus, CORONICERAS, HYATT, 1867. Genoholotype, *Am. coronaries*, Quenstedt.

## Genus, ARNIOCERAS, AGASSIZ-HYATT, 1867

1867, Foss. Ceph.; Bull. Mus. Comp. Zool., V, 73.

The type is definitely indicated (1) by the generic name, (2) by the species credited to Agassiz.

*Arnioceras* (ἀρνειός, a ram) indicates a type with trivial name *ceras* or similar; and Agassiz's name appears after *Ar. ceratitoides*—*Arnioceras* being one of the five genera which he selected (HYATT, 71).

Under *Ar. ceratitoides* are three references—*A. ceratitoides*, Quenstedt, *A. ceras*, Giebel, and Hauer. In Gen. Ariet. Hyatt places the first to *Ar. bodleyi*, the other to *A. ceras*, Agassiz. On this evidence it seems desirable to select *Ar. ceras* figured in Gen. Ariet. II, 20.

*Result*

Genus ARNIOCERAS, AGASSIZ-HYATT, 1867. Type, *Ar. ceratitoides*, Agassiz, of which *Ar. ceras*, Agassiz (Hyatt, Gen. Ariet. II, 20) is genolectotype.

## Genus, ARIETITES, WAAGEN, 1869

1869, Form. *Am. subradiatus*; Geogn.-Pal. Beitr. II (2) 246.

This genus was proposed for the family of Arietes; and Waagen mentions *Ar. bucklandi*, Sow. as the most noted representative. It is almost certain, however, that he had not correctly identified Sowerby's species, as his definition does not agree in many points.

S. BUCKMAN (Quart. J. Geol. Soc., 1898, LIV, 452) proposed to take *A. turneri*, J. de C. Sowerby, as type of *Arietites*. This species fulfils Waagen's definition very well, especially having the "long pointed process on the venter." This particularly distinguishes the series from *Asteroceras*, where the process is short. In *A. bucklandi* the process is comparatively short.

*A. turneri*, *A. brooki*, Sow., *A. denotatus* Simpson (*A. collenottii*; Wright, XXII B), *A. fowleri*, J. Buckman (*A. denotatus*; Wright, VI, 1) are some of the species which belong here.

*Result*

Genus, ARIETITES, WAAGEN, 1869. Type, one of the Arietes; genolectotype, *A. turneri*, J. de C. Sowerby, CCCCLII, upper figure.

23. SUBCARINATUS,

NAUTILUS

FRECHIELLA



NAUTILUS SUBCARINATUS, YOUNG & BIRD  
(Plate XXIII)

*Original Description*

[YOUNG & BIRD, 1822, p. 255.]

" Fig. 7, Pl. XII, represents a rare and handsome umbilicated nautilus, also from the alum shale. It is distinguished by a flat space running along the back, divided in the middle by a slight ridge, or imperfect keel. The sides are marked with fine striæ, and with irregular undulations; and the edges of the septa, where exposed, are beautifully foliated. This species is not so flat as *n. whitbiensis*, nor so globose as *n. pompilius*, and is much smaller than either. *N. lineatus* of Sowerby, Tab. 41, resembles it, but is obviously another species. From its imperfect keel, we may designate our shell *n. subcarinatus*."

*Additional Details*

YOUNG & BIRD, 1828, p. 271.—At beginning " Fig. 9 " for " fig 7 " ; towards end of par. " *N. astacoides* " for " *N. pompilius* " ; omit sentence about *N. lineatus* ; add at end of par. " The siphuncle, as in keeled ammonites, runs under the keel."

*Remarks*

Stages, conch, sphaerocone; periphery, 4; ornament, 3, or 3c.

Genus *Frechiella*, Prinz, 1904, p. 31. Family Arietidae?

The generic adventures of this species have been—*Nautilus*; Young & Bird, 1822, 1828; *Ammonites*; Phillips, 1829, Oppel, 1862; *Phylloceras*; Blake, 1876; Wright, 1884; *Harporceras*; Taramelli, 1880; *Pelecoceras*; Haug, 1887; *Poecilomorphus*; Bonarelli, 1893; Bellini, 1900; *Cymbites*; Buckman 1894; *Frechiella*, Prinz, 1904; Parisch & Viale, 1906. An allied species, *A. sternalis*, was made type of his genus *Paroniceras* by Bonarelli, 1893.

Though the present species may now be placed as *Frechiella*, of which a Yorkshire specimen is the type, yet it may be doubted if the species is any more than a *Cymbites* which shews anagenetic development of a rounded periphery (1) into a carinate-sulcate (4). This would not be a generic character, unless unmodified species of *Cymbites* continued to co-exist: it is only a normal developmental phase (S. BUCKMAN, G. Mag. 1894 (4) I, 360).

*Result*

FRECHIELLA SUBCARINATA, Young & Bird sp. 1822, Whitbian, *subcarinatum* zone [near Whitby].

Fig. 1

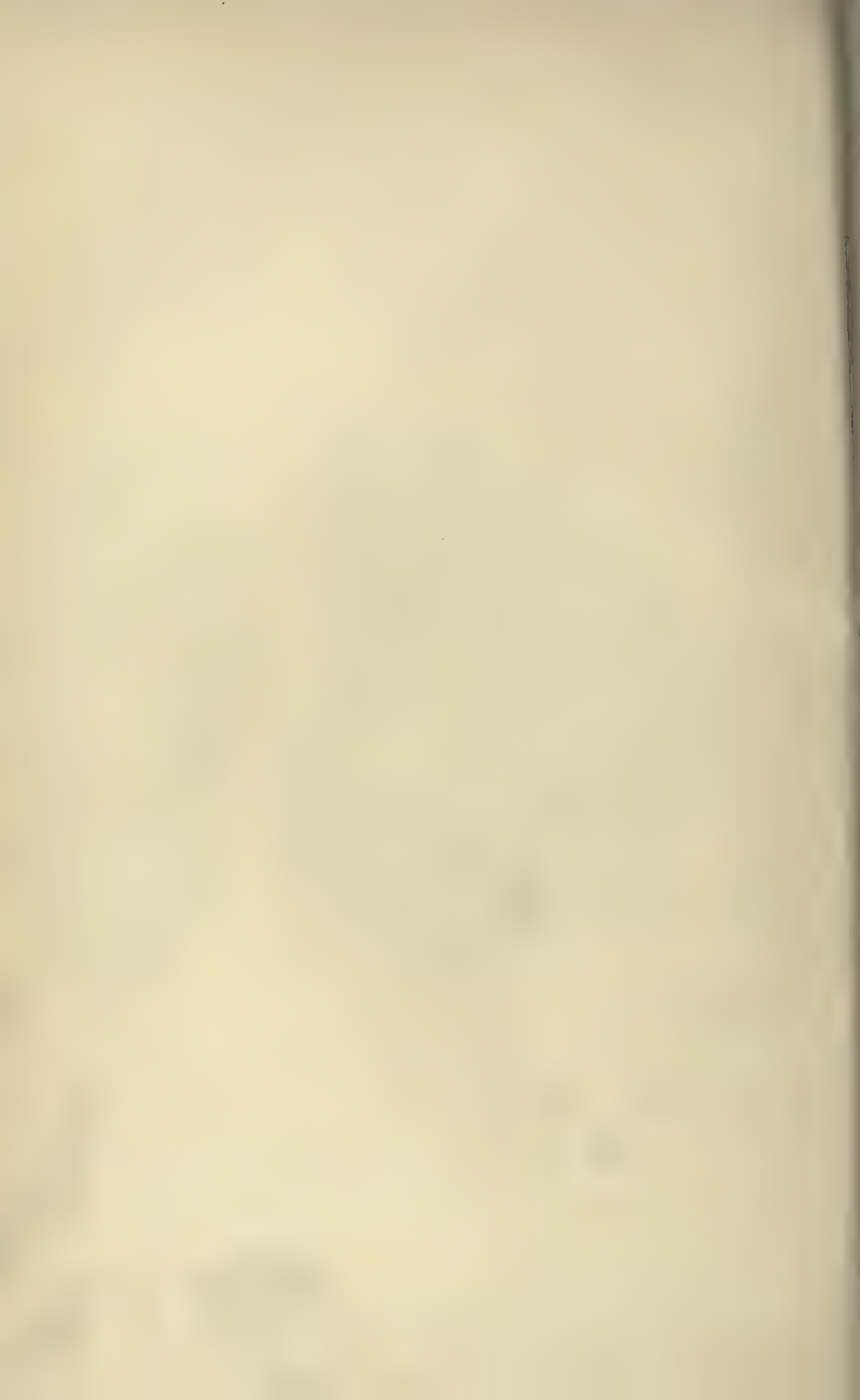


Fig. 2



NAUTILUS SUBCARINATUS, YOUNG & BIRD, 1822  
Whitby Museum, No. 63, Holotype—Specimen Figd. Pl. XII, f. 7  
Fig. 1, Side view; Fig. 2, Apertural view

FRECHIELLA SUBCARINATA, YOUNG & BIRD SP.



*Comparable Species*

- Am. subcarinatus*; Phillips, 1829, XIII, 3.  
*Am. sabinus*, d'Orbigny, 1850 p. 247 (teste Bonarelli).  
*Am. venantii*, Catullo, 1853, III, 3 (teste Bonarelli).  
*Am. subcarinatus*; Oppel, 1862, XLIV, 1, 2.  
*Phylloceras subcarinatum*; Wright 1884, LXXXI, 1—3.  
*Frechiella subcarinata*; Prinz, 1904, II, 1.  
*F. subcarinata*, var. *truncata*, Prinz, 1904, II, 2.  
*F. curvata*, Prinz, 1904, II, 3.  
*F. subcarinata*; Parisch & Viale, 1906, VII, 5—7.



24. BIRDI,

AMMONITES

PALTOPLEUROCERAS

24. AMMONITES BIRDI, SIMPSON  
(Plate XXIV)

*Original Description*

“94. A[mmonites] Birdi. [M. SIMPSON, 1843, pp. 49, 50.]

[“III. Keel between two furrows.

“a. *Furrows slight.*” p. 48.]

“Depressed ; volutions 5, exposed ; radii very prominent, sharp, separated by large concave spaces, nearly straight, then make a slight turn from the aperture, and form a tubercle, make another turn towards the aperture on the back, where they become obsolete ; keel very small ; grooves on either side nearly obsolete ; aperture quadrate ; diameter 2 inches.

“The radii on the rounded inner edge of the whorls are nearly obsolete, then become gradually more and more prominent, until they reach the outer edge, where the groove which separates them is very deep. From the very ferruginous appearance of this specimen I judge it to be from the iron stone bands ; another smaller specimen I possess, is from a lower-bed in the series, and has merely an elevated line for a keel, and the furrows obsolete.

“[P. 50]—In naming this Ammonite, it gives me much pleasure to call to remembrance an individual who, I believe, was the first in this town [Whitby], that undertook geological investigations, and who, together with the Rev. G. Young, contributed much to the advancement of geological science in their Survey of the Yorkshire Coast.”

*Additional Details*

SIMPSON, 1855, p. 92, omits “depressed” at beginning ; omits all after “ironstone bands.”

SIMPSON, 1884, pp. 131, 132, the same as 1855 ; enters the species in Middle Lias a, p. xv.

*Remarks*

Stages, conch, serpentine ; periphery, 4, ornament, 5\*.

The carina is not crenulated ; the ribs are strong, distant and slightly 2 shaped on the side, indistinct with long forward sweep on the periphery, shewing indistinct signs of being bifurcate at and beyond the tubercle. There is only one tubercle, which is almost a spine.

The specimen has been ground away obliquely on one side. The ferruginous appearance which Simpson mentions is very conspicuous.

Genus *Paltoleuroceras*, S. Buckman, 1898, 453 ; family Amaltheidae.

*Result*

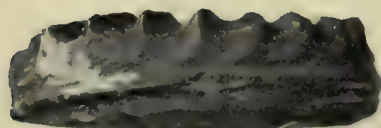
PALTOLEUROCERAS BIRDI, SIMPSON sp. 1843, Domerian, *spinatum*-zone. near Whitby.



Fig. 1

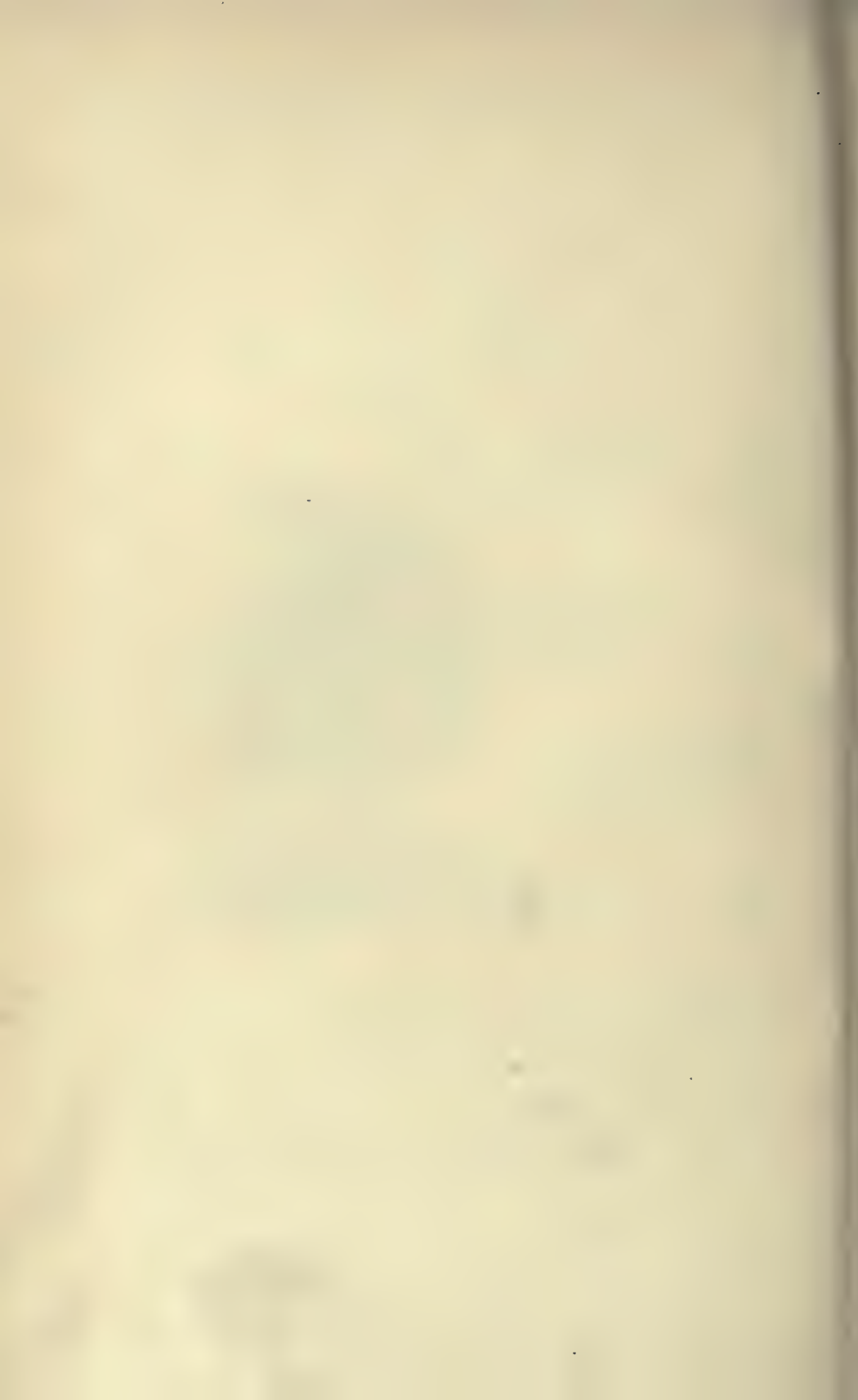


Fig. 2



AMMONITES BIRDI, SIMPSON, 1843  
Whitby Museum, No. 278, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

PALTOPLEUROCERAS BIRDI, SIMPSON SP.



*Comparable Species*

- Nautilus costatus*, Reinecke, 1818, XI, 68.  
*Ammonites hawskerensis*, Young & Bird, 1828, XIV, 6.  
*Am. hawskerensis*; Phillips, 1829, XIII, 8.  
*Am. costatus*; Zieten, 1830, IV, 7.  
*Am. spinatus*; d'Orbigny, 1844, LII,  
*Amaltheus spinatus*; Wright, 1882, LV; LVI, 1—5.  
*Ammonites costatus spinatus*; Quenstedt, 1885, XLII, 17, 18.  
And see No. 22.

## Species of PALTOPLEUROCERAS

1789, *P. spinatum*, Bruguière sp. ; cf. d'Orbigny, LII.

1818, *P. costatum*, Reinecke, sp. Maris prot. 68.

1828, *P. hawskerense*, Young & Bird sp. xiv, 6, much reduced fig.

1843, *P. birdi*, Simpson sp. p. 49.

1855, *P. solitarium*, Simpson sp. p. 93.

1867, *P. pseudocostatum*, Hyatt sp. p. 90 ; for type *A. costatus nudus*, Quenstedt, Jura, XXI, 3. Advisable to use Hyatt's name instead of *nudus* to avoid confusion with *Amaltheus nudus*.

1867, *P. pseudospinatum*, Hyatt sp. p. 90 ; for type Quenstedt, Ceph. v. 10.

1884, *P. elaboratum*, Simpson sp. p. 128 (Y.T.A. xxii).

1911, *P. apyrenum*, nom. nov. founded on *Amaltheus solitarius*, Blake (non Simpson) York. Lias, 1876, VIII, 2, (3).

1911, *P. boreale*, nom. nov. founded on *A. vittatus* ; Phillips (non Young & Bird) Geol. York. 1829, XIII, 9.

*Am. solaris*, Phillips, Geol. York. 1829, IV, 29, may be a *Paltopleuroceras*.

25. DEPRESSUS,

AMMONITES

AMALTHEUS

25. AMMONITES DEPRESSUS, SIMPSON  
(Plate XXV)

*Original Description*

"74. A[mmonites] depressus. [M. SIMPSON, 1843, p. 40.]

["II. With a keel on the back.

"a. Outer whorl broad." p. 31.]

"Very much depressed; volutions 4 or 5, inner ones nearly  $\frac{1}{2}$  concealed, outer whorl  $\frac{1}{2}$  the diameter, sides flattened; radii on the inner whorls straight, prominent, equal to the spaces between, obsolete on the outer whorls; striated; keel strongly crenated; diameter 2 inches.

"This ammonite is the most depressed of any I have seen, not even excepting *A. lenticularis*. The inner whorls diminishing very little in thickness, it has a very shallow umbilicus; the keel has the cord-like appearance observed in *A. Stokesi*, of which I once supposed it to be a variety, but on account of its very depressed form, and the absence of radii from the outer whorl, I am obliged to consider it a distinct species. It also resembles some varieties of *A. Clevelandicus*, but the septa are much more distant, and their ramifications much more simple, a circumstance which shews it to be a distinct species; it is from the ironstone bands."

*Additional Details*

SIMPSON, 1855, 82, omits 'it is from the ironstone bands'; 1884, 118, 119, for "*Stokesi*" puts "*margaritatus*" (119).

*Remarks*

Stages, conch, oxycone; periphery, 3c crenate; ornament, 4c to 1c, mainly 1c.

The genus is *Amaltheus*, Montfort; family Amaltheidæ; and the geological position perhaps about with *A. clevelandicus* as recorded by Simpson, s to u, p. xvii; but it may be higher.

*Ammonites amaltheus depressus*, Quenstedt, Jura, xx, 14, is quite distinct.

*Result*

AMALTHEUS DEPRESSUS, SIMPSON sp. 1843, Domesian, [*margaritatum*, or *algovianum* zone], near Whitby.

Fig. 1

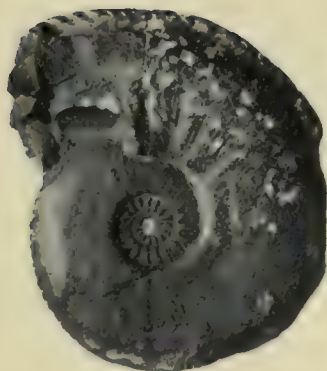


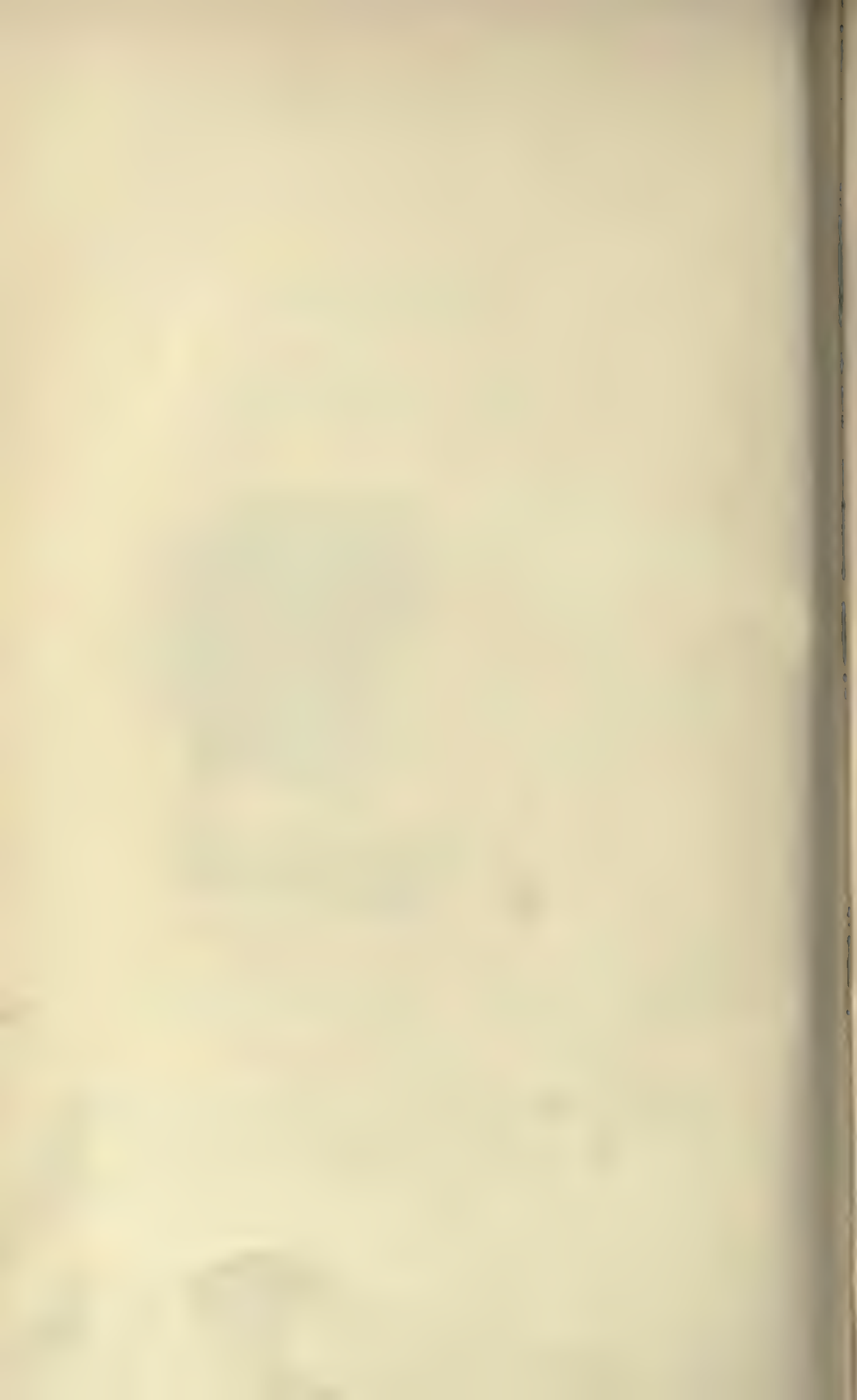
Fig. 2



AMMONITES DEPRESSUS, SIMPSON, 1843  
Whitby Museum, No. 247, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view

AMALTHEUS DEPRESSUS, SIMPSON SP.





*Comparable Species*

- Am. amalthus natus* Quenstedt, 1856, xx. 4: 1885, xli. 2.  
*Amalthus margaritatus*; Bayle, 1878, xchi. 3, 5.  
*Am. amalthus compressus* Quenstedt, 1885, xli. 17: xlii. 8.  
Also see Nos. 1, 20.



*Comparable Species*

*Am. amaltheus nudus*, Quenstedt, 1856, xx, 4; 1885, xli, 2.

*Amaltheus margaritatus*; Bayle, 1878, xciii, 3, 5.

*Am. amaltheus compressus*, Quenstedt, 1885, xli, 17; xlii, 8.

And see Nos. 1, 20.

## Species of AMALTHEUS

- 1808, *Amaltheus margaritatus*, Montfort, p. 90.  
 1813, *A. acutus*, J. Sowerby sp. Min. Conch. xvii (February).  
 1818, *A. stokesi*, J. Sowerby sp. cxci. (February).  
 1818, *A. rotula*, Reinecke sp. Maris prot. 9, 10.  
 1820, *A. amaltheus*, Schlotheim sp.; cf. Zieten, Würt. iv, 1.  
 1820, *A. gibbosus*, Schlotheim sp.; cf. Zieten, Würt. iv. 2. Take  
 this as type of *A. turgidus*, Hyatt, if not Schlotheim's sp.  
 1822, *A. clevelandicus*, Young & Bird sp. xiii, 11.  
 1828, *A. lenticularis*, Young & Bird sp. p. 269 (Y.T.A. xx).  
 1828, *A. subnodosus*, Young & Bird sp. xiii, 3.  
 1828, *A. vittatus*, Young & Bird sp. xiv, 11.  
 1830, *A. paradoxus*, Stahl sp., in Zieten, Würt. xi, 6.  
 1843, *A. depressus*, Simpson sp. p. 40 (Y.T.A. xxv).  
 1843, *A. reticularis*, Simpson sp. p. 38 (Y.T.A. i).  
 1844, *A. engelhardti*, d'Orbigny sp. lxvi.  
 1849, *A. gigas*, Quenstedt sp. Ceph., v, 4c.  
 1849, *A. nudus*, Quenstedt sp. Ceph., v, 4a.  
 1849, *A. spinosus*, Quenstedt sp. Ceph., v, 4b.  
 1856, *A. coronatus*, Quenstedt sp., Jura, xx, 11.  
 1856, *A. lævis*, Quenstedt sp., Jura, xx, 5.  
 1867, *A. gloriosus*, Hyatt, p. 90; as type, Quenstedt, Jura, xx, 12.  
 1867, *A. præstabilis*, Hyatt, p. 91; as type, Quenstedt, Jura, xx, 4.  
 1867, *A. salebrosus*, Hyatt, p. 90; as type, Quenstedt, Jura, xx, 8.  
 1867, *A. turgidus*, Hyatt, p. 90; see *A. gibbosus*.  
 1885, *A. compressus*, Quenstedt sp., Amm. Schwäb. xli, 17.  
 1911, *A. costiger* nom. nov.; as type *Am. amaltheus costatus*,  
 Quenstedt, Amm. Schwäb. xlii, 9.  
 1911, *A. armiger*, nom. nov.; as type *Am. amaltheus spinosus*;  
 Quenstedt, Amm. Schwäb. xli, 5.  
 1911, *A. nodifer*, nom. nov.; as type *Am. amaltheus depressus*,  
 Quenstedt (non *A. depressus*, Simpson), Jura, xx, 14.

26. FIGULINUS,

AMMONITES

OISTOCERAS

26. AMMONITES FIGULINUS, SIMPSON  
(Plates XXVI A. B.)

*Original Description*

"45. A[mmonites] figulinus. [M. SIMPSON, 1855, pp. 47, 48.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 35.]

"This also [like *A. omissus*] has sharp radii, strongly bent towards the aperture on the back; but the whorls are much stronger, and the radii separated by wider and deeper concave spaces [than in *A. omissus*]; the aperture between the radii would be circular, but if taken in a line through the radii, it would be many sided, for the outline from the inner edge of the whorl is first convex, then, for a short space, it becomes concave, so as to [p. 48] form two angles on the side of the whorl; it then undulates across the back, where the radii seem as if rubbed up with the finger in a plastic state."

SIMPSON, 1884, p. 78, the same.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament 5\*\*.

The angles that Simpson mentions are tubercles: there are an inner and outer row of small tubercles from about 15 mm. diameter—the inner row perhaps not so soon.

The "radii strongly bent towards the aperture on the back" [v-shaped radii of periphery] form a distinctive generic character in this and several other species. As there is no generic name available, that of *Oistoceras* is proposed (Gen. p. *iv*). Family Liparoceratidæ.

The geological position is not recorded: it is presumably Lower Lias, a—d.

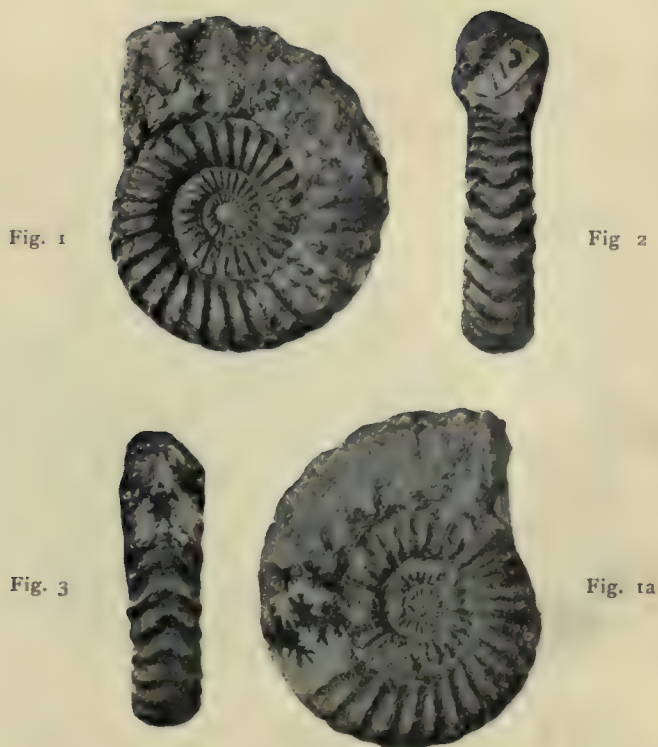
*Result*

OISTOCERAS FIGULINUM, SIMPSON sp. 1855, Charmouthian, [*striatum* zone], near Whitby.

*Note*

Plate XXVI B illustrates a Dorset specimen to shew the coarse-ribbed swollen whorls of an individual more mature than Simpson's type. There are, on the periphery of Simpson's specimen, indications of the commencement of such a whorl. This is the *curvicornis* or bituberculate swollen stage. The peripheral view of this specimen shews the characteristic v-shaped costæ. From near Lyme Regis, evidently from the Green Ammonite Bed (*striatum* zone).





AMMONITES FIGULINUS, SIMPSON, 1855  
Whitby Museum, No. 115, Holotype  
Figs. 1, 1a, Side views ; Fig. 2, Apertural view ; Fig. 3, Peripheral view

OISTOCERAS FIGULINUM, SIMPSON SP.



Fig. 1

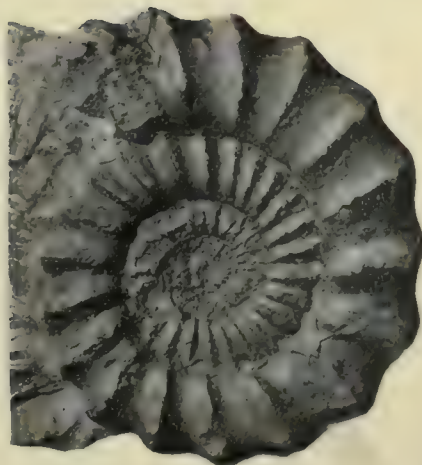


Fig. 2



AMMONITES FIGULINUS, SIMPSON, 1855

J. W. Tutchter Coll. ex Wright Coll. A nearly fully grown specimen from Lyme Regis, Dorset. Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

- Am. arcigerens*, Phillips, 1829, XIII, 9.  
*Am. anguliferus*, Id. XIII, 19.  
*Am. maculatus*; Oppel, 1853, I, 6.  
*Am. omissus*, Simpson, 1855, p. 44.  
*Am. curvicornis*, Schlönbach, 1863, XII, 4.  
*Microceras sinuosum*, Hyatt, 1867, p. 82.  
*M. crescens*, Id.  
*Aegoceras defossum*; Blake, 1876, VIII, 9.  
*Am. dumortieri*, Reynès, 1879, xxxi, 24—26.  
*Aeg. curvicornum*; Wright, 1880, xxxi, 3, 4.



27. OMISSUS,

AMMONITES

OISTOCERAS



27. AMMONITES OMISSUS, SIMPSON,  
(Plate XXVII)

*Original Description*

"44. A[mmonites] omisus. [M. SIMPSON, 1855, p. 47.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 35.]

"Volutions 5, exposed, outer whorl more than  $\frac{1}{3}$  the diameter; radii numerous, prominent sharp, separated by concave spaces, suddenly bend towards the aperture in passing over the back; aperture roundish; diameter 1 and two tenths inch.

"This may be distinguished from *A. defossus* by the inner whorls being more slender and numerous, and by their having more numerous and finer radii. It is from the same beds as the last [*A. arcigerens*.—L.L.; R. H. Bay]."

SIMPSON, 1884, 77, the same.

*Remarks*

Stages, conch, serpentine; periphery, 1; ornament, 4.

The outer whorl is less than  $\frac{1}{3}$  the diameter, which too is  $1\frac{1}{10}$  inch.

This is a species of *Oistoceras* (Gen. p. *iv*) in the pre-tuberculate stage. Geological position probably that of *A. figulinus*.

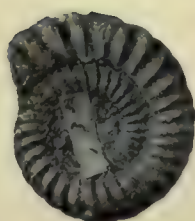
*Result*

OISTOCERAS OMISSUM, SIMPSON sp. 1855, Charmouthian [*striatum*-zone], Robin Hood's Bay, near Whitby.

Fig. 2

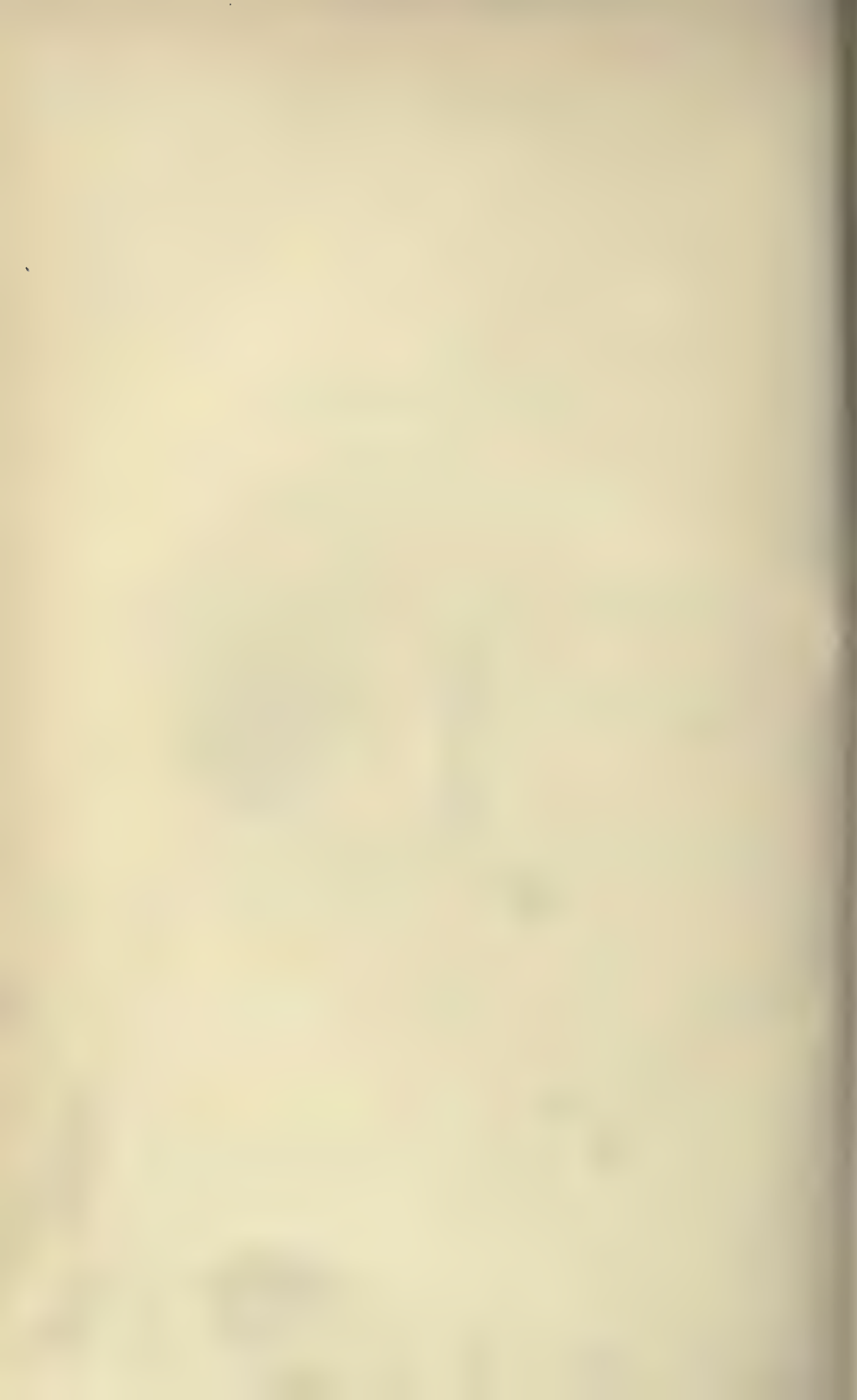


Fig. 1



AMMONITES OMISSUS, SIMPSON  
Whitby Museum, No. 502, Holotype  
Fig. 1, Side view; Fig. 2, Peripheral view

OISTOCERAS OMISSUM, SIMPSON SP



*Comparable Species*

*Am. figulinus*, No. 26. List given there.



28. AUREOLUS,

AMMONITES

ECHIOCFRAS

28. AMMONITES AUREOLUS, SIMPSON  
(Plate XXVIII)

"172 A[mmonites] aureolus. [M. SIMPSON, 1855, p. 94].

["III. Keel between two furrows." p. 90.

"b. *Furrows distinct.*" p. 93.]

"Volutions 8, exposed, outer whorl less than  $\frac{1}{4}$  the diameter, sides regularly rounded; radii numerous, nearly straight, sharp, not equal to the intervening concave furrows, terminate on the outer margin of the whorl; keel rounded, depressed, between two slight furrows; aperture roundish; diameter 1 inch.

"This ammonite, on the side, greatly resembles *A. aureus*, and the radii in places have a tendency to form two slight tubercles. The cast is smooth, and of a golden colour.

"The shell is thin, smooth, and brownish, without any appearance of striæ; the ramifications of the septa are very simple and distant, at irregular intervals of two or three radii.—L.L.; R. H. Bay; Mr. Clarkson's Col.

*Additional Details*

SIMPSON, 1884, 134, adds to first par.: "L.L.; 15, R. H. Bay." Adds to second par.: "On comparing a description I wrote of a specimen I received of Mr. Bean, labelled *A. finitimis*, I find it identical with the above. I also believe that Blake's *A. spiratissimus* is the same as my *A. aureolus*. They are all from the same bed, and are strongly marked to the very centre."

*Remarks*

Stages, conch, serpenticone; periphery, 4; ornament, 4 passing to 5. The carina in the last half whorl becomes distinct though feeble, with small depression each side of it. The small tubercles on outer end of ribs can be seen; but there is nothing of the kind on inner area.

Genus *Echioceras*, Bayle, 1878; family Hildoceratidæ perhaps; see *A. exortus*, 19. Geological position as given by Simpson, L.L. 15 [*oxynotum* zone] seems low.

*Result*

ECHIOCERAS AUREOLUM, SIMPSON sp. 1855, Sinemurian, *oxynotum* zone [? Charmouthian, *varicostatum* zone], Robin Hood's Bay, near Whitby.



Fig. 1

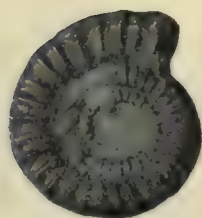


Fig. 2



AMMONITES AUREOLUS, SIMPSON, 1855  
Whitby Museum, No. 872, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

ECHIOCERAS AUREOLUM, SIMPSON SP.



*Comparable Species*

*Am. viticola*, Dumortier, 1867, xxxi, 9—13.

*Am. edmundi*, Id. xxxix, 3, 4.

*Am. vellicatus*, Id. xl, 5—8.

*Aegoceras?* *finitimum*; Blake 1876, vi, 9.

*Arietites varicostatus*; Wright, 1878, vii, 6.

*Am. schlumbergeri*, Reynès, 1879, xli, 20, 21.

*Arietites spiratissimus*; Hug, 1899, x, 13.

*Polymorphites bronni*; Id. x, 14.

*Arietites favrei*, Id. xii, 5, 6.

*Arietites boehmi*, Id. xii, 8.

And see No. 19.



29. VORTEX,

AMMONITES

PORPOCERAS

29. AMMONITES VORTEX, SIMPSON  
(Plates XXIX A.B.)

*Original Description*

"80. A[mmonites] vortex. [M. SIMPSON, 1855, pp. 60, 61.]

["I. Without a dorsal keel or furrow." p. 35.

b. *Armed with spines or distinct tubercles.*" p. 58.]

Volutions 6 or 7, exposed, outer whorl  $\frac{1}{4}$  the diameter; radii numerous, annular, split in two near the back, where there is a row of tubercles, and pass directly over without bending towards the aperture; aperture subquadrate, transverse; diameter 3 inches.

"This resembles some varieties of *A. subarmatus*, having two [p. 61] radii connected with each tubercle, in the button and loop style; the tubercles, however, are more distant, there being on the outer whorl two radii interposed between those connected with the tubercles. The inner edge of the whorls is also more rounded, forming a deep groove at the suture, and the umbilicus is not so deep, the outer whorl having nearly the same size throughout. The inner side of the whorls is but little indented by the succeeding ones. The radii, which on the inner whorls are strong and rounded, and equal to the intervening concave spaces, become depressed and nearly obsolete towards the aperture. Where the shell has been removed, there is displayed a very strong siphuncle, without any apparent constrictions. The ramifications of the septa are numerous and pointed, differing very much from those observed in *A. subarmatus*.—L.L.; R. H. Bay."

*Additional Details*

SIMPSON, 1884, pp. 92, 93; adds [p. 93] to end of 1st par. "and I have seen one much larger inner whorl, imperfect. U.L., 1, Whitby." The comma ought evidently to stand after "larger," not after "whorl." Omits "L.L., R. H. Bay."

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 5\*.

The larger specimen noticed by Simpson, 1884, is figured in Plate XXIXB.

Genus *Porpoceras*, nov. (Gen. p. 7); family Dactyloidea, Hyatt, 1867. Geological position presumably *fibulatum* zone.

*Result*

PORPOCERAS VORTEX, SIMPSON sp. 1855, Whitbian, [*fibulatum* zone], near Whitby.

Fig. 1



Fig. 2



AMMONITES VORTEX, SIMPSON, 1855  
Whitby Museum, No. 153a, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

PORPOCERAS VORTEX, SIMPSON SP.





*Comparable Species*

- Am. subarmatus* ; J. de C. Sowerby, 1823, CCCCVII, 1.  
*Am. desplacei*, d'Orbigny, 1845, CVII.  
*Stephanoceras subarmatum* ; Wright, 1884, LXXXV, 1—3.  
*S. crassum* : Wright, 1884. LXXXVI, 1, 2, 8—10.  
*Cœloceras* (*Peronoceras*) *desplacei* ; Joly, 1905, 11.



30. TURRICULATUS,  
AMMONITES  
PERONOCERAS

30. AMMONITES TURRICULATUS, SIMPSON  
(Plate XXX)

*Original Description*

"75. A[mmonites] turriculatus. [M. SIMPSON, 1855, p. 59.]

"I. Without a dorsal keel or furrow." p. 35.

"b. Armed with spines or distinct tubercles." p. 58.

"Volutions 6 or 7, much exposed, outer whorl  $\frac{1}{2}$  the diameter, sides depressed, inner margin prominent, sharply rounded; radii numerous, fine, annular, pass over the back undivided, with short ones there frequently introduced, on the outer edge of the whorls a row of tubercles or short knobs at intervals of 5 or 6 radii; aperture subquadrate; diameter  $2\frac{1}{2}$  inches.

"This is rather a robust shell. The radii are fibulated at the tubercles, and nearly obsolete at the aperture.—Syn. A. Davæi, Y. & B. [Young & Bird]."

*Additional Details*

Simpson, 1884, p. 91, adds "U.L." to end of first par.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 4c, 4, 5\*.

The plain costate stage lasts to about 35 mm. diameter; then costae with occasional tubercles making fibulate pattern at rather long intervals.

The species shows a development of ornament the reverse of that of *A. davæi* with which it has been confounded, namely 4 to 5 instead of 5 to 4. *A. davæi* is catagenetic from spinous to costate, this species shews anagenesis from costate to spinous. Any suggestion of connecting the two genetically by costate intermediaries of the *Dactylioceras* pattern must face the difficulty of accounting for the simplified suture line of the Dactyloids.

As this species has *Dactylioceras* costation followed by the *Peronoceras* style of fibulation, it seems to show the origin of the latter genus, and it may be reckoned as an early *Peronoceras*. It is a connecting link.

Genus *Peronoceras*, Hyatt, 1867 (Gen. 11); family Dactyloidea, Hyatt, 1867. Geological position Upper Lias, with appearance suggesting the Grey Shale, U.L. 8.

*Result*

PERONOCERAS TURRICULATUM, SIMPSON sp. 1855, Whitbian, [*tenuicostatum* zone?], near Whitby.

Fig. 1



Fig. 2



AMMONITES TURRICULATUS, SIMPSON, 1855  
Whitby Museum, No. 152, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

PERONOCERAS TURRICULATUM, SIMPSON SP.





*Comparable Species*

*Am. attenuatus*, Simpson, 1855, p. 54.

*Am. desplacei*; Dumortier, 1874, (iv) xxvii, 4.

*Stephanoceras fibulatum*; Wright, 1884, LXXXV, 5, 6, 8.

For species comparable with prefibulate stage, see No. 31c.



# YORKSHIRE TYPE AMMONITES

EDITED BY

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AUTHOR OF

"A MONOGRAPH OF INFERIOR OOLITE AMMONITES, 1887-1907"

The Original descriptions reprinted, and illustrated by figures of the types,  
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J. W. TUTCHER

## Part IV

10 Plates, and Descriptions Nos. 31—37

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1911

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### PART IV

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•  
31. SEMICELATUS,  
AMMONITES  
DACTYLIOCERAS

## 31. AMMONITES SEMICELATUS, SIMPSON

(Plate XXXI)

*Original Description*

"32. A[mmonites] semicelatus. [M. SIMPSON, 1843, p. 22.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"This agrees very nearly with the last [A. annulatus, Sowerby]; but the inner whorls are nearly one-half concealed by the outer whorl. There are others which have often been confounded with this, but I would rather consider them as varieties of the last, or compressed specimens of A. communis, and restrict the present name to those which have the inner whorls somewhat concealed."

*Additional Details*

SIMPSON, 1855, pp. 50, 51.—"54. A. semicelatus.—Depressed; volutions 7 or 8, inner ones nearly  $\frac{1}{2}$  concealed, outer whorl more than  $\frac{1}{4}$  the diameter, inner margin depressed, depressed [p. 51] near the back; radii annular, pass nearly straight over the back, rounded, fine, numerous, equal to the intervening concave furrows, double in number on the back; aperture ovate; diameter  $3\frac{1}{4}$  inches.

"The form of the radii and the smoothness of the cast render this species very like a compressed variety of A. annulatus; but it may be distinguished by the greater width of the outer whorl, partly concealing the inner ones, as well as by its more depressed form.

"On the inner whorls the margin is prominent; radii regular, distinct, split in two near the back, flattened, separated by concave spaces; radii of the cast round aperture ovate—U.L."

SIMPSON, 1884, pp. 81 82; places "the" before "aperture" in last par. (p. 82).

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 4 (4c?).

Costæ septate; whorls convergent. No tubercles visible on costæ. Genus, *Dactylioceras*, Hyatt, 1867 (Gen. v). Family, Dactyloidæ, Hyatt, 1867. Geological position is "zone of A. angulatus" [*annulatus*], BLAKE, 1876, 299, = Grey Shale, U.L. 8.

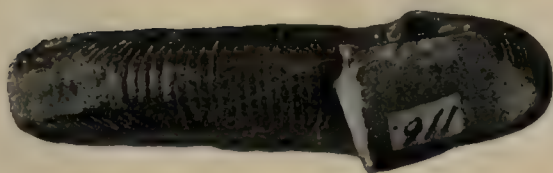
*Result*

DACTYLIOCERAS SEMICELATUM, SIMPSON sp. 1843, Whitbian, *tenuicostatum*-zone, near Whitby.

Fig. 1



Fig. 2



AMMONITES SEMICELATUS, SIMPSON, 1843  
Whitby Museum, No. 116, Holotype

Fig. 1, Side view, nat. size ; Fig. 2, Apertural view, slightly reduced

DACTYLIOCERAS SEMICELATUM, SIMPSON SP.





*Comparable Species*

- Argonauta anguinus*, Reinecke, 1818, fig. 73.  
*Am. annulatus*, J. Sowerby, 1819, CCII (fig. 5 is Oppel's lectotype).  
*Am. tenuicostatus*, Young & Bird, 1822, XII, 8.  
*Am. æquistriatus*, Münster in Zieten, 1830, XII, 5.  
*Am. annulatus*; d'Orbigny, 1844, LXXVI, I, 2.  
*Am. annulatus*; Quenstedt, 1849, XIII, II.  
*Stephanoceras annulatum*; Wright, 1884, LXXXIV, 7, 8.  
*Am. communis*; Quenstedt, 1885, XLVI, I, 2.  
*Dactylioceras helianthoides*, Yokoyama, 1904, IV, 4—6.



32. CORNUTUS,

AMMONITES

PHRICODOCERAS

32. AMMONITES CORNUTUS, SIMPSON,  
(Plate XXXII)

*Original Description*

"53. A[mmmonites] cornutus. [M. SIMPSON, 1843, p. 31.]

["I. Without a dorsal keel or furrow." p. 7.

"b. Armed with spines or distinct tubercles." p. 22.]

"Volutions 5, exposed, rather rapidly diminishing, outer whorl  $\frac{2}{3}$  the diameter; radii annular, very prominent, slender, separated by rather wide concave spaces; two rows of blunt tubercles on the back; shell striated; aperture circular; diameter 2 inches.

"This beautiful, highly characteristic, and rare species, is from the lower beds of lias at Robin Hood's Bay; it might have been associated with *A. maculatus*, but the two prominences on the back, which suggest the idea of horns, render it necessary to unite it with the armed ones. It differs from that species, also, in the slenderness of the ribs, and in the more rapid diminution of the whorls; it approaches Sowerby's *A. Taylori*."

*Additional Details*

SIMPSON, 1855, p. 71, instead of "shell striated" says "shell coarse and cracked;" adds at end, "On the back of a young specimen  $\frac{5}{8}$  inch diameter, there are four rows of tubercles, two of which become obsolete near the aperture." SIMPSON, 1884, pp. 105, 106, describes it as "*A. Taylori*, Sow," and says it comes from "L.L.,  $\gamma$  [y], R. H. Bay" (p. 105). Entered as *A. Taylori* in L.L.  $\gamma$  (p. xx).

*Remarks*

Stages, conch, serpenticoncave; periphery, 1; ornament, 5\*\* declining to 5\*.

Genus *Phricodoceras*, Hyatt, 1900; family, Liparoceratidæ.

For geological position and other remarks, see *A. quadricornutus*, No. 33.

*Result*

PHRICODOCERAS CORNUTUM, SIMPSON sp. 1843, Charmouthian, *armatum-jamesoni* zone, Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2

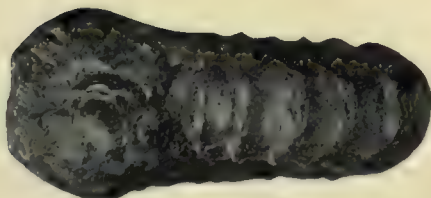
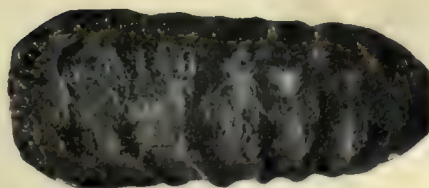


Fig. 3



AMMONITES CORNUTUS, SIMPSON, 1843

Whitby Museum, No. 185, Holotype

Fig. 1, Side view ; Fig. 2, Apertural view ; Fig. 3, Peripheral view

PHRICODOCERAS CORNUTUM, SIMPSON SP.



*Comparable Species*

- Am. taylori*, J. de C. Sowerby, 1826, DXIV, 1.  
*Am. proboscideus*; Zieten, 1830, x, 1.  
*Am. lamellosus*, d'Orbigny, 1844, LXXXIV, 1, 2.  
*Am. taylori*; d'Orbigny, 1845, CII, 3—5.  
*Am. taylori costatus*, Quenstedt, 1849, IX, 20.  
*Am. taylori nodosus*, Id. IX, 21.  
*Am. quadricornutus*, Simpson, 1855, p. 71 (Y.T.A. 33).  
*Am. taylori*; Quenstedt, 1856, XVI, 8; 1884, XXVII, 10—21, 28—30.  
*Am. taylori*; Hauer, 1861, I, 20, 21.  
*Ægoceras taylori*; Wright, 1880, XXXI, 5—7.  
*Am. taylori ornatissimus*, Quenstedt, 1884, XXVII, 25.  
*Am. taylori macerrimus*, Id. XXVII, 26.  
*Am. taylori coronula*, Id. XXVII, 27.  
*Am. striatus bicornis*, Id. XXVIII, 24.





33. QUADRICORNUTUS,  
AMMONITES  
PHRICODOCERAS

33. AMMONITES QUADRICORNUTUS, SIMPSON  
(Plate XXXIII)

*Original Description*

"109. A[mmonites] quadricornutus. [M. SIMPSON, 1855, p. 71.]

"I. Without a dorsal keel or furrow." p. 35.

"b. Armed with spines or distinct tubercles." p. 58.

"Two rows of spines." p. 68.]

"Volutions 4 or 5, exposed, outer whorl more than  $\frac{1}{2}$  the diameter; radii annular, very prominent, rounded, slender, separated by wide concave spaces, armed with four rows of strong blunt spines on the back; shell thick, striated transversely; aperture round; diameter 2 inches.

"Whether it is possible that this can be merely a variety of the last [A. cornutus] or not, I would not take upon me to say. The whorls are less inflated, the ribs more prominent, and the spines in general strongly developed, especially those on the middle of the back; and I believe it is from a different bed; but one of the radii, I observe, is in every respect like those of A. cornutus. If it is not a distinct species, it is certainly a very interesting variety, and worthy of a separate description.—L.L.; R. H. Bay. Mr. Morley's Col."

*Additional Details*

SIMPSON, 1884, p. 106, reads "annular" and "transversely"; for "A. cornutus" has "A. Taylori"; adds at end, "Whitby Museum."

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 5\*\*, almost 5\*\*\*, for there is swelling on umbilical border.

This species is much nearer to *A. taylori*, J. de C. Sowerby, than is *A. cornutus*; but its whorls are less tumid and its ribs, in inner whorls, more approximate.

This species and *A. taylori* represent a stage of development which *A. cornutus* has passed through. Genus, *Phricodoceras*, Hyatt, 1900; family, Liparoceratidæ. The geological position is probably much the same as that of *A. cornutus*; but this shows a clayey matrix, while *A. cornutus* is pyritized. *A. cornutus*, therefore, probably occurs in the pyritous band at top of Simpson's L.L. y. (p. xx), and *A. quadricornutus* in the shale below.

*Result*

PHRICODOCERAS QUADRICORNUTUM, SIMPSON sp. 1855, Charmouthian, [armatum-jamesoni zone], near Whitby.

Fig. 1



Fig.



Fig. 3



AMMONITES QUADRICORNUTUS, SIMPSON, 1855  
Whitby Museum, No. 495, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view ; Fig. 3, Peripheral view

PHRICODOCERAS QUADRICORNUTUM, SIMPSON SP.



*Comparable Species*

See *A. cornutus*, No. 32.



34. FABRICATUS,  
AMMONITES  
PHYLLOCERAS

## 34. AMMONITES FABRICATUS, SIMPSON

*Original Description*

"10. A[mmmonites] fabricatus. [M. SIMPSON, 1855, pp. 37, 38.]

["I Without a dorsal keel or furrow.

"a No spines." p. 35.]

"Rather tumid; inner volutions concealed, outer whorl more than  $\frac{1}{2}$  the diameter; umbilicus large; radii on the inner part of the whorl broad, flattish, obsolete on the rounded back; striæ [p. 38] numerous, annular, fine, fimbriated; aperture ovate; diameter  $\frac{1}{2}$  inch.

"Probably from the Jet-rock."

SIMPSON, 1884, p. 65, the same.

*Remarks*

Stages, conch, sphærocone; periphery, 1, towards 2,—there is slight angularity; ornament 2,—striate with constrictions, the spaces between constrictions Simpson calls radii.

Genus, *Phylloceras*, Suess, 1865; family, *Phylloceratidæ*.

*Result*

PHYLLOCERAS FABRICATUM, SIMPSON sp. 1855, Whitbian, *exaratum* zone, near Whitby.



Fig. 1



Fig. 2



AMMONITES FABRICATUS, SIMPSON, 1855 °  
Whitby Museum, No. 469, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view ; both  $\times 2$

PHYLLOCERAS FABRICATUM, SIMPSON SP.



*Comparable Species*

*Am. heterophyllus*, J. Sowerby, 1820, CCLXVI.

*Am. argelliezi*, Reynès, 1868, VI, 3.

*Am. hebertinum*, Id. II, 3.

*Am. (Phylloceras) nilsoni*; Meneghini, 187-, XVIII, 7.

= *Phylloceras beatricis*, Bonarelli, 1899, 214.

*Phylloceras hebertinum*; Meneghini, 188-, App. III, 6.

*P. infraliasicum*, Vadasz, 1908, IX, 2.



35. RADIATUS,  
AMMONITES  
ARIETITES

### 35. AMMONITES RADIATUS, SIMPSON (Plate XXXV)

#### *Original Description*

"89. A[mmonites] radiatus. [M. SIMPSON, 1843, p. 47.]

["II. With a keel on the back." p. 31.

"b. Outer whorl narrower." p. 44]

"Volutions 4, inner ones  $\frac{1}{2}$  concealed, outer whorl not quite  $\frac{1}{2}$  the diameter, sides rounded; radii straight, numerous, sharp, regular, delicate, nearly obsolete on the rounded back where they turn towards the aperture; keel slender, rather rounded, furrow on either side slight; aperture ovate; diameter  $\frac{1}{2}$  inch.

"This is an exceedingly beautiful and well-defined species; the radii are all as if drawn with geometrical exactness; the keel and all its parts have the greatest regularity. I have seen 5 or 6, all small and uniform, and entirely unlike the young of *A. geometricus*, *Bucklandi*, or any other species; it occurs in the lower lias at Robin Hood's Bay."

#### *Additional Details*

SIMPSON, 1855, pp. 88, 89.—p. 89, after "delicate" in first par. "bend towards the aperture near the back; the keel slender, rather rounded, furrows distinct; aperture ovate; diameter  $\frac{3}{4}$  inch." In second par. after "exactness;" "those near the aperture slightly waving, absent in the centre; the keel—." SIMPSON, 1884, p. 126, as 1855.

#### *Remarks*

Stages, conch, becoming oxycone; periphery, 4; ornament, 4c. The specimen, figured x2, is quite a young form.

Genus, *Arietites*, Waagen, 1869 (Gen. vii); family, *Arietidae*, Hyatt. Geological position about L.L. 16, presumably.

#### *Result*

ARIETITES RADIATUS, SIMPSON sp. 1843, Sinemurian, [*stellare* zone], Robin Hood's Bay, near Whitby.

Fig. 2



Fig. 1



AMMONITES RADIATUS, SIMPSON, 1843  
Whitby Museum, No. 304, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view ; both  $\times 2$

ARIETITES RADIATUS, SIMPSON SP.





*Comparable Species*

- Am. fowleri*, J. Buckman, 1844, xii, 7; refig. Pal. U. 1904, 37.  
*Am. denotatus*, Simpson, 1855, 76, type figd. as *Arietites collenotii*;  
Wright, 1881, xxii B.  
*Am. cluniacensis*, Dumortier, 1867, xxv, 8—10.  
*Arietites denotatus*; Wright, 1878, vi, 1.  
*A. impendens*; Wright, 1881, xxii A, 4.  
*A. collenotii*; Wright, 1881, xxii A, 6—9; xxii B.  
*Am. impendens*; Quenstedt, 1884, xx, 7—10.  
*Asteroceras collenoti*; Hyatt, 1889, x, 10.



36. ARCTI'S,

AMMONITES

OXYNOTICERAS

## 36. AMMONITES ARCTUS, SIMPSON

*Original Description*

"8. A[mmonites] arctus. [M. SIMPSON, 1843, p. 10.]

["I. Without a dorsal keel or furrow.

a. *No spines*" p. 7.]

"This greatly resembles the last [*A. dennyi*]; but the outer whorl is narrower; the back is rounded; it has a few obscure annular radii, but no constrictions; it occurs along with the last."

SIMPSON, 1855, p. 38; 1884, p. 66, the same.

*Remarks*

Stages, conch, serpenticon; periphery, 1; ornament, 3c. There are a few obscure ribs and a little irregularity which might indicate relics of an auriculoid stage. The suture-line is goniatitic with few denticulations. About  $\frac{1}{4}$  whorl is body chamber, the last two septa approximate.

The specimen (figd.  $\times 2$ ) is presumably an immature *Oxynticeras*, Hyatt, in the larval or *Cymbites* stage of ornament and suture line, but commencing to be serpenticon. Family Arietidae, Hyatt.

Geological position, Ind. Band 13, with *A. dennyi*. The position of *A. dennyi* was misprinted "Ind. Band 3" in 7b, Ad. Details, line 3. This should be corrected.

*Result*

OXYNOTICERAS ARCTUM, Simpson sp. 1843, Sinemurian, *oxynotum* zone, Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



AMMONITES ARCTUS, SIMPSON, 1843  
Whitby Museum, No. 471, Holotype  
Fig. 1. Side view; Fig. 2, Apertural view; both  $\times 2$

OXYNOTICERAS ARCTUM, SIMPSON SP.



*Comparable Species*

- Am. lævigatus*, J. de C. Sowerby, 1827, DLXX, 3.  
*Am. dennyi*, Simpson, 1843, pp. 9, 10 (Y.T.A. 7).  
*Am. davidsoni*; Dumortier, 1867, (II) XXI, 1—4.  
*Am. berardi*, Id. XXI, 5—7.  
*Am. obesus*, Reynès, 1879, XXVI, 10, 11.  
*Am. lævigatus*; Id., XLIII, 10, 11.  
*Am. globosus*  $\beta$ ; Quenstedt, 1884, XXII, 47.

And see No. 7.





37. NAUTILIFORMIS,

AMMONITES

ÆGOCERAS

37. AMMONITES NAUTILIFORMIS, J. BUCKMAN  
(Plates XXXVII A, B, C, D.)

*Original Description*

[J. BUCKMAN in MURCHISON, Geol. Chelt. ed ii, 1844, pp. 90, 105.]

"Ammonites nautiliformis (Buckman) L.M. [Lias Marlstone], Dumbleton [p. 90].

"*A. nautiliformis*.—Back rounded, broad; volutions 3 to 4—the outer volution occupying more than half of the whole diameter, the inner ones only slightly exposed; aperture large, obtusely cordate; ribs small, those of the upper part of the cell proceeding from the inner margin to about mid-way across the outer volution, where they are joined to a large tubercle, from which they divide into three smaller ones, which proceed across the back and are united in the same manner on the opposite side. Diameter 8 in., thickness 5½ in.

"Locality.—*Lias Marlstone, Alderton Hill*.

"Only a single specimen, and that somewhat imperfect. Its form is so much like that of the Nautilus that, had not the saddles been well exposed, we should almost have considered it as belonging to the latter genus [p. 105]."

*Remarks*

Stages, conch, sphærocone; periphery, 1; ornament, 5\*\*.

This is the specimen pointed out to me by my father as the type of his *A. nautiliformis*, and the only example which he had obtained. There is, however, discrepancy in the measurements: the diameter is 6½ inches (156 mm.), and the thickness about 4½ inches (113 mm.). The description is also incorrect: There are two lines of tubercles, though they are obscure; the ribs on the periphery (back) are not smaller than those on the inner marginal area, but larger.

The saddles (and lobes) are exposed in places, but not enough for delineation.

This specimen, though not a Yorkshire Type, is figured to illustrate remarks on development (p. xiv), and on genera (p. iii).

Genus, *Ægoceras*, Waagen (Gen. p. iii). It is assumed that this species represents the sphærocone stage of *Ægoceras*, being distinguished from *Androgynoceras* (sphærocone) by more inflated whorls and coarser ornament, and from *Liparoceras* by less coarse and more regular ornament. Family, *Liparoceratidæ*, Hyatt, 1867.

Geological position—The term "marlstone" would presumably indicate the strata of the *spinatum* and *margaritatus* zones at the locality: the specimen has not the matrix of the former.

Alderton Hill is an eminence in the parish of Dumbleton.

*Result*

ÆGOCERAS NAUTILIFORME, J. BUCKMAN sp. 1844, Domerian, [*margaritatus* zone], Alderton Hill, Dumbleton, Gloucestershire.

*Note*

A Somerset specimen is figured (Plates XXXVII c, d) to shew the ornament. The ribs on its venter are somewhat larger, more distant and fewer than those of the type. It is from the Marlstone of South Petherton.



AMMONITES NAUTILIFORMIS, J. BUCKMAN, 1844  
S Buckman coll. ex J. Buckman coll., Holotype  
Side view  $\times 0.83$ . Dumbleton, Gloucestershire

ÆGOCERAS NAUTILIFORME. J. BUCKMAN SP.





AMMONITES NAUTIFORMIS, J. BUCKMAN, 1844  
S. Buckman coll. ex J. Buckman coll., Holotype  
Apertural view  $\times 0.62$ . Dumbleton, Gloucestershire

ÆGOCERAS NAUTILIFORME, J. BUCKMAN SP.





ÆGOCERAS NAUTILIFORME, J. BUCKMAN SP.  
S. Buckman coll. Side view  $\times 0.77$   
South Petherton, Somerset

ÆGOCERAS NAUTILIFORME, J. BUCKMAN SP.







ÆGOCERAS NAUTILIFORME, J. BUCKMAN SP.  
S. Buckman coll. Peripheral view  $\times 0.75$   
South Petherton, Somerset

ÆGOCERAS NAUTILIFORME, J. BUCKMAN SP.



*Comparable Species*

- Am. bechei*, J. Sowerby, 1821, CCLXXX.  
*Am. heptangularis*, Young & Bird, 1828, XIV, 1.  
*Am. bechei*; Zieten, 1832, XXVII 4a, 5b [4b].  
*Ægoceras bechei*; Wright, 1881, XLI.  
*Am. striatus*; Quenstedt, 1884, XXIX, 1, 4, 6, 8.  
*Am. striatus reineckii*, Quenstedt, 1884, XXVIII, 5.  
*Ægoceras (Platypleuroceras) variscoi*, Parona, 1897, XI 1.



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.,

AUTHOR OF

"A MONOGRAPH OF INFERIOR OOLITE AMMONITES, 1887-1907"

The Original descriptions reprinted, and illustrated by figures of the types,  
reproduced from photographs mainly by

J. W. TUTCHER

## Part V

10 Plates, and Descriptions Nos. 38—44

LONDON:  
WILLIAM WESLEY AND SON,  
28 ESSEX STREET, STRAND

1911

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## PART V

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ST. GEORGE'S HALL

38. SULCATUS,

AMMONITES

SCHLOTHEIMIA

38. AMMONITES SULCATUS, SIMPSON  
(Plate XXXVIII)

*Original Description*

"108. A[mmonites] sulcatus. [M. SIMPSON, 1843, pp. 55, 56.]

["IV. With a dorsal furrow only." p. 55]

"Depressed; volutions much concealed, outer whorl nearly  $\frac{1}{2}$  the diameter; radii strong on the inner margin of the whorl, then split in two or three, [p. 56] faint, twice bent; an angular furrow on the back; aperture triangular; diameter  $\frac{3}{8}$  inch.

"This interesting little ammonite may be readily distinguished from the rest, by the angular furrow on the back; which is very distinct on the outer whorls, and becomes a mere line on the inner ones. It like a great many other small and beautiful species is from the lowest beds of lias at Robin Hood's Bay."

SIMPSON, 1855, 101; 1884, 142, the same.

*Remarks*

Stages, conch, serpenticone; periphery, sulcate; ornament, 3c.

The diameter is really  $\frac{3}{8}$  inch (16 mm.). The radii are well flexed. The specimen is worn.

Genus, *Schlotheimia*, Bayle, 1878. Geological position about L.L. 16, or higher.

The name antedates *A. sulcatus*, J. Buckman, by a year: the latter may therefore become *Schlotheimia sulcifera* (see Pal. U. 1904, 39, T2).

*Result*

SCHLOTHEIMIA SULCATA, SIMPSON sp. 1843, Sinemurian [*stellare-oxynotum* zone], near Whitby.



Fig 1



Fig 2



AMMONITES SULCATUS, SIMPSON, 1843

Whitby Museum, No. 743, Holotype

Fig. 1, Side view ; Fig. 2, Peripheral view ; both  $\times 1.5$



*Comparable Species*

*Am. lacunatus*, J. Buckman, 1844, XI, 4, [5]; Reynès, 1879, XLV, 3-6; Pal. U. 1905, 78, 4, 5.

*Am. lacunatus*; Dumortier, 1867 (II) XXI, 18-20.

*Ægoceras lacunatum*; Wright, 1882, LVI, 16-18.

*Æg. deletum*, Canavari, 1882, XVIII, 13.

*Am. lacunatus*; Quenstedt, 1884, XXII, 1-4.

*Schlotheimia* sp. ind., Canavari, 1888, IV, 13.

*S. lacunata*; S. Buckman, 1905, 78, MI.

*S. subpolita*, Id., 78, M6.

*S. substriata*, S. Buckman, 1906, X, 3.

*S. lacunata*; Id., X, 13, 14.



39, SCORESBYI,

AMMONITES

XIPHEROCERAS

39. AMMONITES SCORESBYI, SIMPSON  
(Plates XXXIX A, B, C)

*Original Description*

"14. A[mmonites] Scoresbyi. [M. SIMPSON, 1843, p. 12.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Volutions 6 or 7, exposed; radii prominent on the sides, obsolete on the back and on the inner margin of the whorls, nearly equal to the concave spaces between them; striæ annular, fringed; aperture circular; diameter 8 inches.

"In many respects this resembles *A. Belcheri*; but the fimbriated striæ, the form of the aperture, as well as its large size, and coarse radii, point it out as a distinct species. On the sides of the whorls, also, may be traced two rows of obscure tubercles. All that I have seen were of a large size, and were procured from the lowest beds of Lias at R. H. Bay. I have named it in honour of the Rev. Dr. Scoresby, a native of Whitby, who has done eminent service to Natural History, and Physical Science; and who, from comparatively small beginnings, by close application, activity, and perseverance, has raised himself to successive stations of honour and usefulness."

*Additional Details*

SIMPSON, 1855, 69, places the species under "*b. Armed with spines or distinct tubercles*" [p. 58]—"Two rows of spines" [p. 68]. He adds [p. 69], after "sides," "with two rows of blunt tubercles"; after "striæ," has "obsolete"; instead of 2nd par., has "This is principally distinguished from *A. Birchii* by the smallness of the tubercles.—L. L., R. H. Bay."

SIMPSON, 1884, 103, as 1855.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 5\*\*, with signs of catagenesis to a costate stage.

This is the bituberculate species of the genus. By "striæ fringed" Simpson means the condition of test illustrated by Wright, 1880, xxv, 2, 3.

Genus, *Xipheroceras* (Gen. *iv*); family Deroceratidæ, Hyatt. The geological position is presumably about L.L. 21-23.

An immature example from the Lycett coll. labelled "L.L., R. H. Bay" is preserved in the Geological Survey Museum, No. 23616, and is depicted Pl. XXXIX c. Its ontogeny shows ornament 1, 3, 4, 5\*, 5\*\*, or the passage from a *planicosta* through a *ziphus* stage to *scoresbyi*. Stage 5\*\* is first perceptible at about 12 mm. diameter.

*Result*

XIPHEROCERAS SCORESBYI, SIMPSON sp. 1843, Sinemurian, [obtusum zone] Robin Hood's Bay, near Whitby.



AMMONITES SCORESBYI, SIMPSON, 1843  
Whitby Museum, No. 173, Holotype  
Side view  $\times 0.64$

XIPHEROCERAS SCORESBYI, SIMPSON SP.







AMMONITES SCORESBYI, SIMPSON, 1843  
Whitby Museum, No. 173, Holotype  
Peripheral view  $\times 0.64$

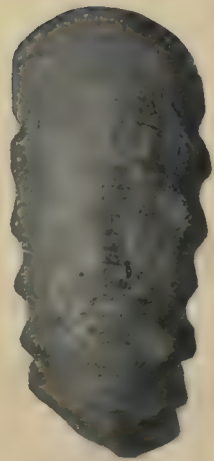
XIPHEROCERAS SCORESBYI, SIMPSON SP



Fig. 1



Fig. 2



XIPHEROCERAS SCORESBYI, SIMPSON SP., 1843  
Geol. Survey Museum, No. 23616, ex Lycett coll., Topotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

XIPHEROCERAS SCORESBYI, SIMPSON SP.



*Comparable Species*

*Am. ziphus* ; Reynès, 1879, XL, 13-17.

*Am. armatus rasinodus*, Quenstedt, 1884, XXIV, 26.

*Am. rotundaries* ; Id., XXIV, 27.



40. ACUTICARINATUS,  
AMMONITES  
ARNIOCERAS

40. AMMONITES ACUTICARINATUS, SIMPSON  
(Plate XL)

*Original Description*

"171. A[mmonites] acuticarinatus. [M. SIMPSON, 1855, p. 94.]

["III. Keel between two furrows." p. 90.

"b. Furrows distinct." p. 93.]

"Volutions 7 or 8, exposed; radii separated by concave spaces, sharp, faint on the inner margin, gradually increasing towards the keel, where they suddenly turn towards the mouth; keel slender, sharp, prominent, entire; aperture ovate; diameter  $2\frac{1}{4}$  inches.

"This greatly resembles *A. semicostatus*, but the sides of the whorls are more rounded, the keel sharper and more prominent, and without any distinct furrow on either side. It is from the Lower Lias at R. H. Bay.

"I formerly named this shell *A. Youngi*; but I was afterwards reminded that another from the Speton clay (*A. rotula*, Sow.) had been named *A. Youngi*, by Mr. Bean, and described by Young, previous to the publication of Sowerby's description."

*Additional Details.*

SIMPSON, 1884, 133, 134, adds "L.L., 25, R. H. Bay" to end of first paragraph. Omits last sentence of the second.

*Remarks*

Stages, conch, serpenticonic; periphery, 4; ornament, 1-5.

Genus, *Arnioceras*, Hyatt, 1867 (Gen. vi); family Arietidæ.

*Result*

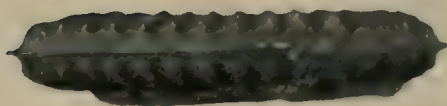
ARNIOCERAS ACUTICARINATUM, SIMPSON sp. 1855, Sinemurian, [*semicostatum* zone], Robin Hood's Bay, near Whitby.



Fig. 1



Fig. 2



AMMONITES ACUTICARINATUS, SIMPSON, 1855  
Whitby Museum, No. 295, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

ARNIOCERAS ACUTICARINATUM, SIMPSON SP.



*Comparable Species*

- Am. semicostatus*, Young & Bird, 1828, XII, 10.  
*Am. kridion*; d'Orbigny, 1844, LI, 1-6, type of  
    *Am. hartmanni*, Oppel, 1856, p. 79, and  
    *Arnioceras kridiforme*, Hyatt, 1867, p. 74.  
*Arnioceras cuneiforme*, Hyatt, 1867, p. 73; 1889, II, 7.  
*A. incipiens*, Id., p. 74.  
*Arietites semicostatus*; Blake, 1876, VI, 4[a].  
*Arnioceras hartmanni*; Hyatt, 1889, II, 17.



41. COMPACTILIS,  
AMMONITES  
PSEUDOLIOCERAS

41. AMMONITES COMPACTILIS, SIMPSON  
(Plates XLIA,B)

*Original Description*

"119. A[mmonites] compactilis. [M. SIMPSON, 1855, p. 75.]

["II. With a keel on the back.

"a. Outer whorl broad." p. 72.]

"Much depressed; inner volutions nearly concealed, outer whorl more than  $\frac{1}{2}$  the diameter; radii waving, nearly obsolete; obsoletely striated; keel rounded, entire; aperture acutely triangular, or ovate; diameter  $1\frac{1}{2}$  inch.

"This, like Boulbiensis, and the next [*A. lectus*, *Simp.*] has the keel formed by a slight groove on either side, and some specimens have a faint rim round the small umbilicus; but it is a much more depressed and elegant species than *A. Boulbiensis*. The foliations of the septa are also very different, being far more delicate and numerous, crowding the whole surface with their ramifications; one set of lobes touching, or nearly touching one another. I can count six principal lobes between the keel and the inner margin of the whorl."

*Additional Details*

SIMPSON, 1884, 110, adds to end of first par. "U.L., 7."

*Remarks*

Stages, conch, oxycone; periphery, 3c, concavifastigate; ornament, 3c.

The slight groove on either side of the keel is presumably the relic of a furrow such as that shewn by *A. subconcavus*, No. 10.

It is not certain that the specimen (Pl. XLIA) is the type; but it agrees with Simpson's description and measurement. It may be the type from its history: it belonged to Dr. Lycett, and bears his label, thus: "This is the *A. compactilis* of Simpson. It approaches *Lythensis*, but as it comes from a different bed, has different sutures, and the outer whorl always entirely overlaps the inner, I consider it a species."

Genus, *Pseudolioceras*, S. Buckman, 1889; family *Hildoceratidæ*. Geological position, SIMPSON says U.L. 7 (= Jet Rock); BLAKE, 1876, 309, gives "zone of *A. jurensis*."

*Result*

PSEUDOLIOCERAS COMPACTILE, SIMPSON sp. 1855, Yeovilian [*striatum* zone, Peak], Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



AMMONITES COMPACTILIS, SIMPSON, 1855  
Geol. Survey Museum, No. 24914, ex Lycett coll., Holotype?  
Fig. 1, Side view; Fig. 2, Apertural view

PSEUDOLIOCERAS COMPACTILE, SIMPSON SP.





Fig. 2

Fig. 1



AMMONITES COMPACTILIS, SIMPSON, 1855  
Whitby Museum, No. 298, Metatype  
Fig. 1, Side view; Fig. 2, Peripheral view

PSEUDOLIOCERAS COMPACTILE, SIMPSON SP.



*Comparable Species*

- Am. boubiensis*, Young & Bird, 1822, 252 (No. 11).  
*Am. lythensis*; Dumortier, 1874, XI, 9, 10 = *Pseudolioceras dumortieri*, S. Buckman, 1905, p. clviii.  
*Harpoceras compactile*; Blake, 1876, VIII, 6.  
*H. compactile*; Haug, 1884, XIV, 1.  
*Am. württenbergeri*, Denckmann, 1887, I, 1; IV, 7.  
*Am. falcodiscus*, Quenstedt, 1885, LIV, 22, 48.  
*Pseudolioceras compactile*; S. Buckman, 1889,  
    XX, 3, 4 = *P. gradatum*, S. Buckman, 1902, p. clviii;  
    XX, 5, 6 = *P. pumilum*, Id. p. clix.  
*Harpoceras (Pseudolioceras) compactile*; Janensch, 1902, V, 5.

See also Nos. 10, 11, 13, 42, 43.



42. WHITBIENSE,  
PSEUDOLIOCERAS

42. PSEUDOLIOCERAS WHITBIENSE, nov.  
(Plate XLII)

*Original Description*

Stages, conch, oxycone; periphery, 3c; ornament, 4c. Whorls slightly gibbous towards periphery, which carries a low septicarina with a small depression on each side (periphery concavifastigate). Ornament, somewhat broad, distant, sigmoidal ribs, of low relief, somewhat irregular, and somewhat bunched in pairs. Umbilicus almost concave; the walls being planate, just the inner rim of each whorl makes a small feature.

*Distinction*

From *A. compactilis*, Simpson, No. 41, the whorls are stouter, more gibbous towards periphery, which is not so sharp; the ribs are more pronounced, fewer, broader, and irregular. From *P. gradatum*, S. Buckman, the more pronounced ornament, especially the ribs on the inner part of whorls; also the sides less definitely separated from the carina. From *A. württenbergeri*, Denckmann, more inflated whorls especially towards periphery; more distinct ornament.

*Remarks*

This is very near to the species figured by Haug as *A. compactilis*; and it is evidently a form regarded by Simpson as belonging to his species.

Its exact horizon is uncertain: it is not from the same bed as *A. compactilis* (No. 41); its condition is more that of *A. lectus*, (No. 43).

*Result*

PSEUDOLIOCERAS WHITBIENSE, nov. [Whitbian, *lilli-variabilis* zone? Peak] near Whitby.

Fig. 1

Fig. 2



AMMONITES COMPACTILIS, SIMPSON, 1855  
Whitby Museum, No. 228, Metatype  
Fig. 1, Side view ; Fig. 2, Peripheral view

PSEUDOLIOCERAS WHITBIENSE, nov.





*Comparable Species*

See *A. compactilis*, No. 41.



43. LECTUS,

AMMONITES

PSEUDOLIOCERAS

25. AMMONITES LECTUS, SIMPSON  
(Plate XLIII)

*Original Description*

"74. A[mmonites] lectus. [M. SIMPSON, 1843, p. 34.]

["II. With a keel on the back.

"a. Outer whorl broad." p. 31.]

"Much depressed; volutions 4 or 5, inner ones nearly concealed, outer whorl more than  $\frac{1}{2}$  the diameter; radii waving, nearly obsolete; striae numerous, waving; keel slightly crenated; diameter  $1\frac{1}{4}$  inch.

"The sides of the whorls are regularly convex as in *A. ovatus*; the keel is slightly crenated by the radii passing over it, and is little more than the sharp edge of the back, with a slight groove on each side. In this respect, as well as in its general appearance, it greatly resembles *A. Boulbiensis*, of which I once thought it a mere variety; but as the inner margin of the whorls is much depressed, so as to leave but a very shallow umbilicus, and as I am not aware that it is ever found in the same beds with *A. Boulbiensis*, but in others considerably lower in the series, I conclude it to be a distinct species."

*Additional Details*

SIMPSON, 1855, 75, for "crenated" has "crenulated" in first par.; then adds "aperture acutely triangular, or ovate"; in 2nd par. omits remark about "variety" after "*Boulbiensis*"; omits "as" after the following "but"; omits all after "umbilicus."

SIMPSON, 1884, 110, as in 1855, but adds to end of first par. "U.L., 7."

*Remarks*

Stages, conch, oxycone; periphery, 3c, concavifastigate; ornament 3c.

Genus, *Pseudolioceras*, S. Buckman, 1889; family Hildoceratidae. The much compressed whorls with shallow, comparatively open umbilicus mark this species as very separable from most other species of the genus.

Geological position, Simpson says U.L. 7 (= Jet Rock); Blake, 1876, 309, zone of *A. jurensis*.

*Result*

PSEUDOLIOCERAS LECTUM, SIMPSON sp. 1843, [Whitbian, *lilli-variabilis* zone? Peak], near Whitby.

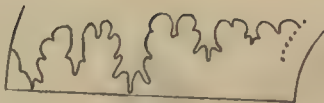
Fig. 1



Fig. 2



Fig. 3



AMMONITES LECTUS, SIMPSON, 1843  
Whitby Museum, No. 238, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view ; Fig. 3, Suture  
line ( $\times 4$ ) approximate



*Comparable Species*

*Am. concavus* ; d'Orbigny, 1845, CXVI, (2 species).

*Am. concavus* ; Chapuis & Dewalque, 1855, VIII, 3.

*Harpoceras lectum* ; Blake, 1876, VIII, 7.

*Am. falcodiscus*, Quenstedt, 1885, LIV, 23, 24.

See also Nos. 10, 11, 13, 41, 42.





44. MILES,

AMMONITES

DEROCERAS

#### 44. AMMONITES MILES, SIMPSON (Plate XLIV)

##### *Original Description*

" 91. A[mmonites] miles. [M. SIMPSON, 1855, p. 65.]

[" I. Without a dorsal keel or furrow." p. 35.

" b. Armed with distinct spines or tubercles." p. 58.]

" Volutions 6, exposed, slender; radii separated by rather wide spaces, terminate near the back in long, pointed spines; striæ numerous, undulating, annular; aperture roundish; diameter  $3\frac{1}{2}$  in.

" This is a smooth and more elegant species than the last [*A. armatus*, Sow.]; the spines are more distant, and there cannot be reckoned more than two or three striæ on each spine. The sides of the outer whorl are often rather flattened, and the spines being long and slender, are very generally knocked off.

" Inner volutions striated, but without spines or radii.—L.L., R. H. Bay."

##### *Additional Details*

SIMPSON, 1884, 97, 98, adds at end " v " after " L.L. " (98).

##### *Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 5\*.

Genus, *Deroceras*, Hyatt, 1867; family, *Deroceratidæ*, Hyatt. The geological position given by Simpson is in the *valdani*-zone: this seems too high, unless there be derivation.

##### *Result*

DEROCERAS MILES, SIMPSON sp. 1855, Charmouthian [*hemera armati* ?]  
Robin Hood's Bay, near Whitby.

Fig. 1

Fig. 2



AMMONITES MILES, SIMPSON, 1855  
Whitby Museum, No. 162, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view



*Comparable Species*

- Am. armatus*, J. Sowerby, 1815, xcv.  
*Am. marshallani*, Simpson, 1843, p. 24.  
*Am. owenensis*, Id., p. 25.  
*Am. armatus*; d'Orbigny, 1844, LXX.  
*Am. muticus*, Id., LXXX.  
*Deroceras armatum*; Bayle, 1878, L.  
*Am. armatus*; Wright, 1880, XXVIII.  
*Am. armatus fila*, Quenstedt, 1884, xxv, 7.  
*Am. armatus lina*, Id., xxv, 8.  
*Am. armatus distans*, Id., xxvi, 7.  
*Ægoceras armatum*; Hug, 1899, VII, 4, 5.



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## Part VI

9 Plates, and Descriptions Nos. 45—51

LONDON:

WILLIAM WESLEY AND SON,

28 ESSEX STREET, STRAND

1912

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45. MACULATUS,

AMMONITES

ANDROGYNOCEFRAS

45. AMMONITES MACULATUS, YOUNG & BIRD  
(Plate XLV)

*Original Description*

[YOUNG & BIRD, 1822, pp. 248, 327.]

"No. 12, Pl. XIV, is a much smaller shell [than *a. acuticostatus*], from the blue limestone, or rather from alluvial nodules of blueish limestone, having also very sharp ribs, but continued round the back; and having the aperture round. The original shell is brown with some white spots, as in *a. Hildensis*; so that we may name this species *a. maculatus*. A similar species, or a variety of the same species, also from the alluvium, has on the sides two small knobs upon each rib; the one towards the back, and the other, which is the smallest, towards the inside."

"[P. 327] Plate XIV. Fig. 12. *Ammonites maculatus*. Alluvium."

*Additional Details*

YOUNG & BIRD, 1828, p. 259. "In the same beds [as *A. Haveskerensis*] we find that beautiful ammonite, No. 9, Pl. XIV; which we have named *A. maculatus*, as it is usually found of a brown colour, spotted with white or yellow; though sometimes it is found entirely brown, or dark olive. It is akin to *A. gagateus*, No. 7, Pl. XII; being marked with prominent smooth ribs, which pass round the back, where they are generally somewhat flattened, and make a slight turn upwards. The aperture is circular; in which respect, and in the more rapid diminution of the whorls, it differs from *A. gagateus*."

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 4, massive. Genus, *Androgynoceras*, Hyatt (Gen. 777); family Liparoceratidae. This species presents the capricorn stage. The specimens with small knobs, mentioned by YOUNG & BIRD (1822, 248), and those with inflated whorls, noticed by SIMPSON (1855, 48), are forms in transition towards *Am. heterogenes* (No. 46).

SIMPSON, 1884, p. xix, enters the species in Lower Lias c. He places what he calls *A. capricornus* 4 beds above, over 20 feet higher.

*Result*

ANDROGYNOCERAS MACULATUS, YOUNG & BIRD sp. 1822, [Char-mouthian, *striatum* zone, near Whitby], alluvium.



AMMONITES MACULATUS, YOUNG & BIRD, 1822  
Whithy Museum, No. 493, Holotype, —Figd. Pl. xiv, f. 12, —Side view

ANDROGYNOCERAS MACULATUM, YOUNG & BIRD SP.



Fig. 1



Fig. 2



AMMONITES MACULATUS, YOUNG & BIRD, 1822  
Whitby Museum, No. 493, Holotype,—Figd. Pl. XIV, f. 12.  
Fig. 1, Apertural view ; Fig. 2, Peripheral view

ANDROGYNOCERAS MACULATUM, YOUNG & BIRD SP.



*Comparable Species*

- Am. capricornus*, Schlotheim, 1820.  
*Am. planicosta*; d'Orbigny, 1844, LXV.  
*Am. adnethicus*, Hauer, 1854, I.  
*Am. ferstli*, Id. II.  
*Am. maculatus*; Quenstedt, 1856, XIV, 9.  
*Ægoceras capricornus*; Bayle, 1878, I, 2.  
*Fig. maculatum*; Wright, 1880, XXXIV, 1-3.  
*Am. capricornus*; Quenstedt, 1884, XXXIV, 1, 13.  
*Am. latæcosta*; Id. XXXIV, 2, 3.  
*Am. maculatus*; Id. XXXIV, 5, 6, 7, 9, 10.  
*Liparoceras capricornu*; Richardson, 1904, XV, 7.

And see Nos. 46, 47, 48.





46. HETEROGENES,

AMMONITES

ANDROGYNOCERAS

46. AMMONITES HETEROGENES, YOUNG & BIRD  
(Plate XLVI)

*Original Description*

[YOUNG & BIRD, 1828, pp. 263, 264, 359.]

"One of the most singular of all our ammonites, is that figured, Pl. xiv, No. 7; the outer whirl of which, has also two rows of knobs. The interior part of the shell is comparatively flat, with ribs rather prominent, and flattened on the back, very much like those of *A. maculatus*: near the outer whirl, the ribs begin to have two slight knobs on the sides; and on that whirl, the ribs grow depressed [p. 264] and the knobs elevated, making two prominent rows, as is sometimes the case in the outer whirls of the *A. perarmatus* in the oolite, formerly noticed. But the most remarkable circumstance to be stated is, that the last part of the outer whirl suddenly swells to a great thickness, as if it had belonged to another shell; the difference being the more striking, as the ribs in this part, instead of being flattened on the back, are each split into three, at the outer row of knobs. The mouth, as in the last species [*A. heptangularis*], is subpentangular. We may name this singular shell *A. heterogenes*. Having examined three specimens, all agreeing in form, we are fully satisfied, that it is not, as we at first suspected, two different ammonites accidentally combined. The interior whirls are much more displayed than in No. 1 [*A. heptangularis*].

"[P. 359] Plate xiv. Fig. 7. *A. heterogenes*. Alum shale."

*Remarks*

Stages, conch, serpenticon, incipiently sphærocone; periphery, 1; ornament, 4 and 5\*\*.

Genus, *Androgynoceras*, Hyatt 1867. (Gen. *iii*) and family Liparoceratidæ. Geological position according to SIMPSON (1884, 104) "L.L., c . . . It occurs in the same beds with *A. maculatus*."

*Result*

ANDROGYNOCERAS HETEROGENES, YOUNG & BIRD sp. 1828. [Charmouthian, *striatum* zone, near Whitby.]

Fig. 2

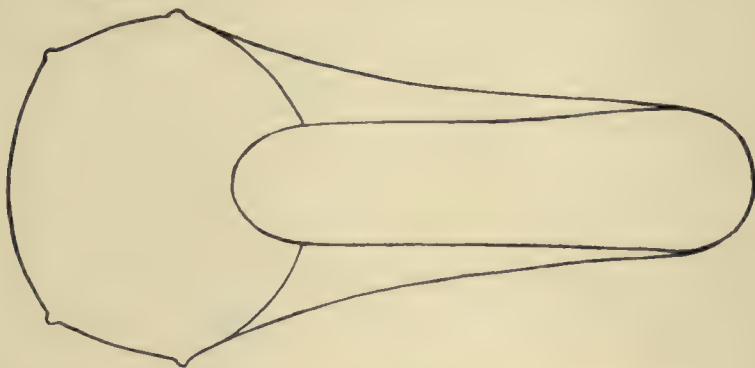


Fig. 1



AMMONITES HETEROGENES, YOUNG & BIRD, 1828  
Whitby Museum, No. 195, Holotype,—Figd. Pl. XIV, f. 7  
Fig. 1, Side view; Fig. 2, Apertural view (outline)

ANDROGYNOCERAS HETEROGENES, YOUNG & BIRD SP.



*Comparable Species*

- Am. henleyi*, J. Sowerby, 1817, CLXXII.  
*Am. latæcosta*, J. de C. Sowerby, 1827, DLVI, 2 [1].  
*Am. heterogeneus*, Phillips, 1829, XII, 19.  
*Am. hybrida*, d'Orbigny, 1844, LXXXV.  
*Androgynoceras appressum*, Hyatt, 1867, p. 83.  
*Liparoceras indecisum*, Id.  
*Ægoceras henleyi*; Wright, 1880, XXXIII.  
*Æg. latæcosta*; Id., XXXII, 1.  
*Æg. maculatum*; Id., XXXIV, 4-6.  
*Æg. heterogenum*, Id., XXXV, 4-6; XXXVI.  
*Am. striatus parinodus*, Quenstedt, 1884, XXVIII, 26.  
*Am. intracapricornus*, Id., XXIX, 9.

And see Nos. 45, 47, 48.



47. INTEGRICOSTATUS,  
AMMONITES  
ANDROGYNOCERAS

47. AMMONITES INTEGRICOSTATUS, SIMPSON  
(Plate XLVII)

*Original Description*

" 40. A[mmonites] integricostatus. [M. SIMPSON, 1855, p. 46.]

[" I. Without a dorsal keel or furrow.

" a. No spines. p. 35.]

" This resembles *A. gagateus*, but it is more depressed, and the whorls are more slender, very prominent on the back, and separated by wide concave spaces; the aperture is about a semi-circle.

" The outer whorls of this ammonite are rather abundant in a bed a little to the south of Bay town; but the inner whorls are so decomposed as not to admit of description."

SIMPSON, 1884, 76, the same.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 4. It is evident that the words "the radii" should have stood before "very prominent" in the original description.

This is a primitive capricorn, and may be the ancestor of the *Liparoceratidæ* on the one hand, and of *Echioceras* on the other: the latter is the earlier of the two series, but it carries the development of the periphery further—to stage 5.

Genus, *Androgynoceras*, Hyatt, (Gen. *iii*) according to present knowledge; family *Liparoceratidæ*, Hyatt. Geological position presumably about L.L. 13.

*Result*

ANDROGYNOCERAS INTEGRICOSTATUM, SIMPSON sp. 1855, Sinemurian, [*oxynotum* zone?], Robin Hood's Bay, near Whitby.



Fig. 1



Fig. 2



AMMONITES INTEGRICOSTATUS, SIMPSON, 1855  
Whitby Museum, No. 92, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

ANDROGYNOCERAS INTEGRICOSTATUM, SIMPSON SP.



*Comparable Species*

*Am. siphuncularis*, Simpson, 1843, p. 46.

*Am. circumdatus*; Reynès, 1879, xxviii, 19-22.

*Am. sirius*, Id., I, 26-32.

See also Nos. 45, 46, 48.



48. SIPHUNCULARIS,

AMMONITES

ANDROGYNOCERAS

48. AMMONITES SIPHUNCULARIS, SIMPSON  
(Plate XLVIII)

*Original Description*

"87. Ammonites] siphuncularis. [M. SIMPSON, 1843, p. 46.]

["II. With a keel on the back." p. 31.

"b. Outer whorl narrower." p. 44.]

"Depressed, volutions 4, exposed; radii straight, strong, obtuse, separated by narrow furrows; siphuncle on the back equal to half the breadth of the whorl; diameter  $\frac{3}{8}$  inch.

"This is a most singular species, the keel being formed of a very distinct tube, which deeply indents the inner part of the succeeding whorls; if we neglect the keel, the aperture would be nearly round. It is from the lower beds of lias at Robin Hood's Bay; for the discovery of this, as well as many other species, we are indebted to Thomas Crosby, a diligent collector of fossils, who has brought to light many large and interesting species, and who has a quick eye in detecting small ones."

*Additional Details*

SIMPSON, 1855, 88, ends 1st sentence of 2nd par. with "tube"; then proceeds instead of rest of par. "In one specimen, part of the tube has been broken off, and the radii are seen to pass over the back, strongly resembling those of *A. maculatus*. The cast is smooth and the shell rough.—L.L., R.H. Bay."

SIMPSON, 1884, 126, practically the same.

*Remarks*

Stages, conch. serpenticon: periphery, 1; ornament, 4.

The tube which caused Simpson to give the name is due to a *Serpula*.

This is a primitive capricorn, which, if it developed, may have given rise to *Androgynoceras* or other genera of Liperoceratidæ, or, perhaps, to *Echioceras*. A generic name is uncertain. Therefore *Androgynoceras*? Hyatt, 1867; family Liparoceratidæ. The geological position is presumably L.L. 13.

*Result*

ANDROGYNOCERAS? SIPHUNCULARE, SIMPSON sp. 1843, Sinemurian, [*oxynotum* zone?], Robin Hood's Bay, near Whitby.



AMMONITES SIPHUNCULARIS, SIMPSON, 1843

Whitby Museum, No. 485

Fig. 1, Side view ; Fig. 1a, Peripheral view, of Holotype ; Fig. 2, Peripheral view of Heautotype : all  $\times 2$

ANDROGYNOCERAS SIPHUNCULARE, SIMPSON SP.





*Comparable Species*

See *Am. integricostatus*, No. 47 ; also compare No. 49.



49. CEREUS,

AMMONITES

ECHIOCERAS

49. AMMONITES CEREUS, SIMPSON  
(Plate XLIX)

*Original Description*

"42. A[mmonites] cereus. [M. SIMPSON, 1855, p. 47.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 35.]

"Volutions 6, exposed, outer whorl nearly  $\frac{1}{4}$  the diameter; radii very prominent on the sides, nearly obsolete on the back, separated by rather wide concave spaces; aperture ovate, transverse; diameter nine-tenths inch.

"Shell smooth and bright, with a few striae, colour light-brown. L.L.; Mr. Ripley's Col.

*Additional Details*

SIMPSON, 1884, 77, adds "of an" after "nine-tenths"; adds "R.H. Bay" after "L.L."; omits "Mr. Ripley's Col."

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 4.

There is a certain likeness in this species to costate *Xipheroceras*: but the suture line negatives the association: it points to connection with the *A. varicostatus* series, in which absence of a keel is a primitive feature.

Genus *Echioceras*, Bayle, 1878. Geological position uncertain. It is not black like specimens of L.L. 13; it is not pyritized; it is of a yellowish brown calcareous appearance (wax-like).

*Result*

ECHIOCERAS CEREUM, SIMPSON sp. 1855, Sinemurian [oxynotum zone or lower?] Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 3



Fig. 2

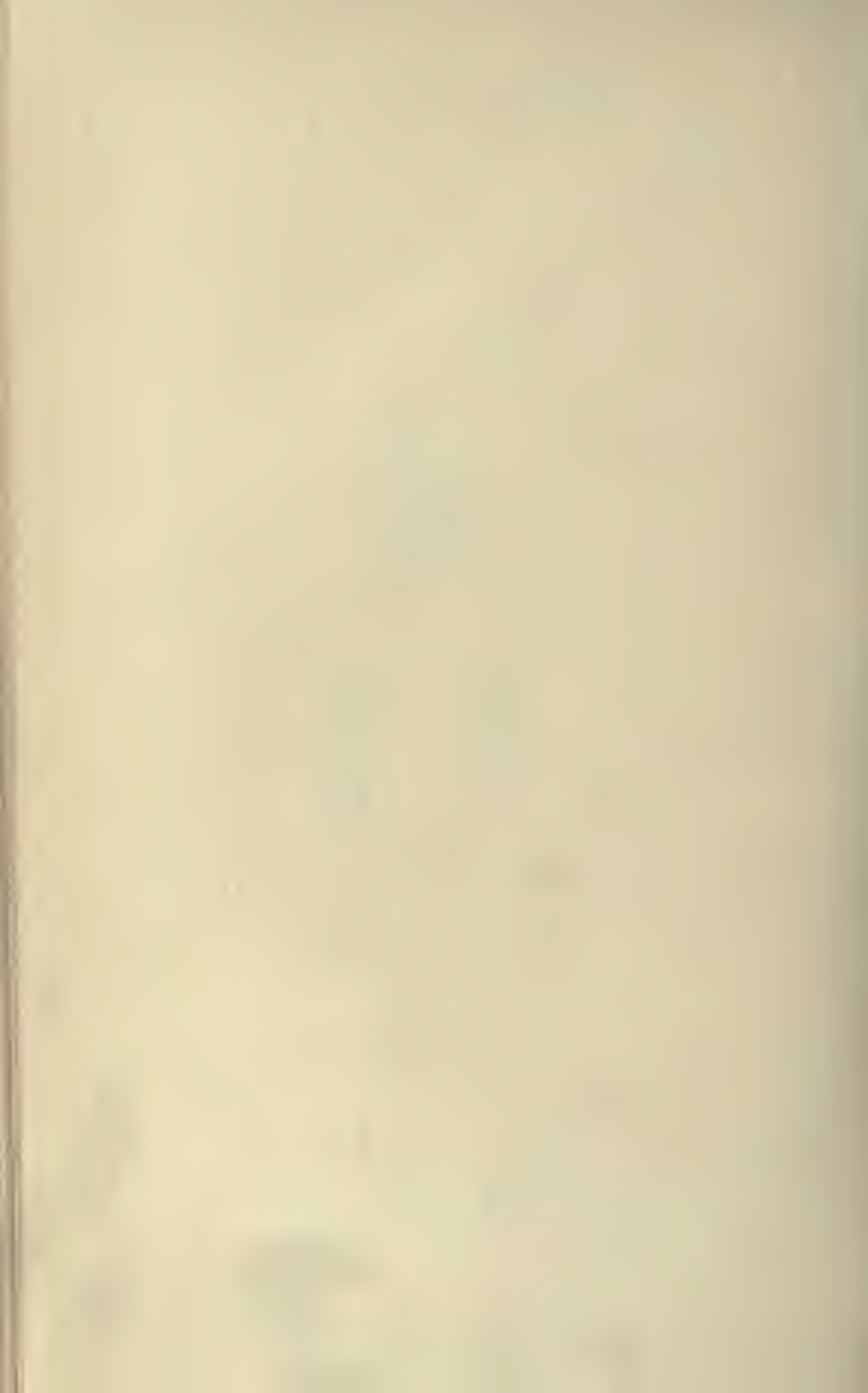


Fig. 4



AMMONITES CEREUS, SIMPSON, 1855  
 Whitby Museum, No. 461, Holotype  
 Fig. 1, Side view; Fig. 2, Apertural view; Fig. 3, Peripheral view: all  
 nat. size; Fig. 4, Suture-line (approximate),  $\times 4$

ECHIOCERAS CEREUM, SIMPSON SP.



*Comparable Species*

*Am. planicosta* ; Dumortier, 1867, (II), xxv, 1-3.

*Am. vesta*, Reynès, 1879, xlv, 47-49, copy of Dumortier as above.

*Am. samuel*, Id., xlv, 25-27.

*Am. raricostatus* ; Quenstedt, 1884, xxiv, 1.

And see No. 19.





50. PERARMATUS,  
AMMONITES  
PORPOCERAS

50. AMMONITES PERARMATUS. YOUNG & BIRD  
(Plate I.)

*Original Description*

[YOUNG & BIRD, 1822, pp. 249, 250, 327.]

"No. 11, Pl. XIV, is a shell with similar markings [to *a. armatus*, Pl. XIII, No. 9], but of a species quite distinct; for the spire, instead of being nearly rounded, appears as if greatly compressed from the back inwards, and the interior shows a deep cavity on both sides, the outer whorls forming a high border around it. Besides, the button and loop marking does not give place to plain ribs in the interior part, but continues towards the [p. 250] centre. Its knobs are more strong and prominent than those of the last shell. . . . We may call . . . No. 11, Pl. XIV, *a. perarmatus*."

"[P. 327] Plate XIV. Fig. 11. *Ammonites perarmatus*. Alum shale."

*Additional Details*

YOUNG & BIRD, 1828, p. 263,—“Sowerby has mistaken the *A. perarmatus* of our First Edition for our *A. subarmatus*, and figured it under the latter name, Tab. 407. 1: which name we shall allow it to retain. Its sides are marked in the button and loop style, as in *A. fibulatus*; but the whirl is very differently shaped, being greatly compressed from the back inwards, and rapidly diminishing in thickness: the central part on the side forming a deep cavity, round which the outer whorl rises like a high ridge, often surmounted with strong spines, as in Sowerby's *A. Listeri*, Tab. 501. 1. We have figured this shell, which we shall now call *A. subarmatus*, Pl. XIV, No. 8. It is not plentiful, and at the same time it admits of varieties: the sides varying in their depth, and the knobs and ribs in their sharpness and prominence.”

*Remarks*

Stages, conch, serpenticon: periphery, 1; ornament, 5\*. The periphery is, in part, abraded. In the somewhat crateriform umbilicus there is only a trace of fibulation; ornament otherwise is regularly tuberculate.

Genus, *Porpoceras* (Gen. 7): family, Dactyloidea. Hyatt, 1867.

In the same year, 1822, in June, the title *Ammonites perarmatus* was given by James Sowerby to a species [*Aspidoceras*] “found in the Pisolite [Corallian] of Malton [Yorkshire]—M. C. IV. 72. In p. 140, footnote, May, 1823, J. de C. Sowerby says “We had not seen the Geol. of the Yorkshire coast, when *A. perarmatus*, tab. 352 was published.” This seems to imply that Young & Bird's work was published first, and that their *A. perarmatus* takes precedence. However, as the names are homonyms, not synonyms, and the genera are now distinct, both the trivial titles can remain.

*Result*

PORPOCERAS PERARMATUM, YOUNG & BIRD sp. 1822. Whitbian.  
[*fibulatum* zone, near Whitby].

Fig. 1

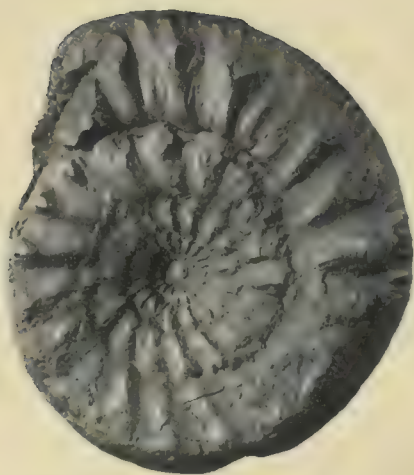
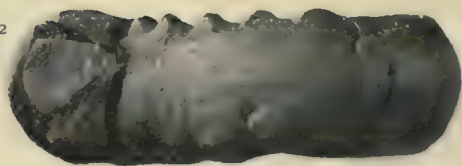


Fig. 2



AMMONITES PERARMATUS, YOUNG & BIRD, 1822  
Whitby Museum, No. 180, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

PORPOCERAS PERARMATUM, YOUNG & BIRD SP.



*Comparable Species*

*Am. subarmatus* ; J. de C. Sowerby, 1823, CCCCVII, 1.

*Am. subarmatus* ; Young & Bird, 1828, XIV, 8.

*Am. subarmatus* : Brown, 1837, XI, 6.

*Stephanoceras subarmatum* ; Wright, 1884, LXXXV, 1.

And see No. 29.



51. ATHLETICUS,

AMMONITES

DACTYLIOCERAS

## 51. AMMONITES ATHLETICUS, SIMPSON

(Plates LIA,B)

*Original Description*

" 189. A[mmonites] athleticus. [M. SIMPSON, 1855, 102.]

" This resembles *A. communis*, but more robust ; the ribs are sharper, and more elevated, some split in two on the outer margin of the whorl. others pass over the back undivided ; inner margin of the whorls prominent ; aperture ovate ; diameter 4 inches.

*Additional Details*

SIMPSON, 1884, 82, adds to first part of sentence " is " after " but " ; adds " M. L. Hawsker " at end of description. He places the species with those which " have a family resemblance to *A. communis* :—whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back " (p. 81).

*Remarks*

Stages, conch, serpenticone ; periphery, 1 ; ornament 4. According to the metatype (Pl. LIB, f. 1) the young shell is a fine ribbed form, and there is anagensis (? renewed) of the costæ.

The genus is *Dactylioceras*, Hyatt, 1867, 95 ; family Dactyloidæ, Hyatt.

The geological position is presumably the very top of the Middle Lias, Simpson's Div. a.

*Result*

DACTYLIOCERAS ATHLETICUM, SIMPSON sp. 1855, Domerian, [*acutum* zone ?] Hawsker, near Whitby.





AMMONITES ATHLETICUS, SIMPSON, 1855  
Whitby Museum, No. 123, Holotype, Side view

DACTYLIOCERAS ATHLETICUM, SIMPSON SP.



Fig. 1



Fig. 2



AMMONITES ATHLETICUS, SIMPSON, 1855  
Whitby Museum, No. 123a, Metatype  
Fig. 1, Side view; Fig. 2, Peripheral view



*Comparable Species*

*Am. holandrei*, d'Orbigny, 1845, cv.

*Am. communis*; Chapuis and Dewalque, 1855, VII, 3, VIII, 1.

*Am. annulatus*; Dumortier, 1874, XXVI, 3, 4.

*Stephanoceras commune*; Wright, 1884, LXXXIV, 1, 2; LXXXVII, 9, 10.

*Am. braunianus*; Quenstedt, 1885, XLVI, 18.

*Am. raristriatus*, Id. XLVI, 5.

And see No. 31.



# YORKSHIRE TYPE AMMONITES

EDITED BY

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AUTHOR OF

"A MONOGRAPH OF INFERIOR OOLITE AMMONITES, 1887-1907"

The Original descriptions reprinted, and illustrated by figures of the types,  
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J. W. TUTCHER

## Part VII

9 Plates, and Descriptions Nos. 52—60

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52. SOLITARIUS,

AMMONITES

PALTOPLEUROCERAS

52. AMMONITES SOLITARIUS, SIMPSON  
(Plate LII)

*Original Description*

" 169. A[mmonites] solitarius. [M. SIMPSON, 1855, p. 93.]

" [III. Keel between two furrows. p. 90.

" *b. Furrows distinct.*" p. 93.]

" Volutions 5, exposed, outer whorl  $\frac{1}{3}$  the diameter of the shell, sides flattened; radii numerous, equal, prominent, nearly straight to the outer margin of the whorl, then suddenly bend towards the aperture, equal to the intervening concave spaces; keel rounded, strongly crenated, the furrows on either side nearly obsolete; aperture oblong quadrate; diameter  $1\frac{1}{2}$  inch."

" On the inner whorls of this ammonite may be seen a row of tubercles, at a short distance from the outer margin. The shell, as far as can be observed, appears very thin, and quite smooth and shining; but very little of it remains, and the cast is roughish, exhibiting the ramifications of the septa rather rounded, and very numerous, covering nearly the whole surface of the shell with their meanderings.—L.L.; R.H.B.; [Lower Lias, Robin Hood's Bay]; Mr. Morley's Col."

*Additional Details*

SIMPSON, 1884, 133, places "L.L., R.H. Bay" at end of first par. instead of 2nd; omits the three words at end of description.

*Remarks*

Stages, conch, serpenticone; periphery, 5, crenulate; ornament, 4c, (5\* inner whorls). This form illustrates the passage from tuberculate to costate species.

Genus, *Paltoleuroceras*, S. Buckman, 1898, 453; family, Amaltheidæ. The geological position given by Simpson is certainly incorrect: the species would be from the top of the Middle Lias.

*Result*

PALTOLEUROCERAS SOLITARIUM, SIMPSON sp. 1855, Domerian, [*sp. pinatum* zone], Robin Hood's Bay? near Whitby.

Fig. 1



Fig. 2



Fig. 3



AMMONITES SOLITARIUS, SIMPSON, 1855  
Whitby Museum, No. 500, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view ;  
Fig. 3, Suture line (approximate),  $\times 3$



*Comparable Species*

- Am. solaris*, Phillips, 1829, iv, 29.  
*Am. costatus nudus*, Quenstedt, 1858, xxi, 3, =  
    *Pleuroceras pseudocostatum*, Hyatt, 1867, p. 90.  
*Am. spinatus*; Meneghini, 187-, xiii, 3-5.  
*Amaltheus solitarius*, Blake, 1876, viii, 2, =  
    *Paltoleuroceras apyrenum*, S. Buckman, 1911, p. 24d.  
*Am. costatus nudus*, Quenstedt, 1885, xlii, 19.  
*Am. cf. costatus*; Id., xlii, 22.  
*Paltoleuroceras pseudocostatum*; Richardson, 1904, xiv, 10.

See also Nos. **22, 24.**



53. TRIVIALIS,  
AMMONITES  
POLYMORPHITES

53. AMMONITES TRIVIALIS, BEAN MS. (SIMPSON)  
(Plate LIII)

*Original Description*

"10. A[mmonites] trivialis. [M. SIMPSON, 1843, pp. 10, 11.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Depressed; volutions 5, exposed, outer whorl  $\frac{1}{3}$  the diameter; radii numerous, sharp, slender, diverging, form obtuse angles on the back; aperture subquadrate, widest near the back; diameter  $\frac{3}{4}$  inch.

"This beautiful little ammonite is from the lowest beds of lias. It has been named by my friend Mr. Bean, to whom it has been [p. 11] long known. Like several others from these beds, it is of a fine bronze colour. This together with the elegance of the whorls and radii, render it one of the most beautiful of our ammonites. On the inner whorls the radii are very close, and on the outer whorls, they are gradually more and more separated by flattish spaces; the aperture becomes more and more quadrate, and the radii, before passing over the back, form small tubercles. Different individuals vary considerably both in the breadth of the outer whorl, and in the prominence of the radii. On some, the radii are strong and prominent, others have the outer whorl nearly smooth."

*Additional Details*

SIMPSON, 1855, p. 44.—Omits "Depressed" and "aperture subquadrate, widest near the back," in first par. Omits 2nd sentence of 2nd par., and last sentence but one. Adds to last sentence "indeed the varieties are so numerous, that they can scarcely be defined."

SIMPSON, 1884, 73, 74,—p. 74 reads in first sentence of 2nd par. "from the Lower Lias", and at end says "L.L., x, R.H. Bay, Saltburn."

*Remarks*

There are three specimens numbered 105 in Whitby Museum register marked as Simpson's types. Of these the specimen now depicted in Fig. 1 agrees best with the original description, and may be considered to be the holotype; the other two being paratypes.

Stages, Fig. 1, periphery, 2, 2c to 1c; ornament 3 to 5; Fig. 2, periphery 2; ornament 3 to 5 commencing—development disturbed by injury; Fig. 3, periphery, 2; ornament 3, 3c to 2c—temporary catagenesis? All have conch serpenticone.

Genus, *Polymorphites*, Sutner in Haug, 1887; family, *Polymorphidae*, Haug. The geological position given by Simpson is where the *jamesoni* is in contact with the *valdani* zone: the same position is given by Haug, 1887, 117 (*P. polymorphus*). Figs. 2 and 3 are referable to forms named by Quenstedt and d'Orbigny, as noted below.

*Result*

1. POLYMORPHITES TRIVIALIS, BEAN-SIMPSON sp. 1843;
  2. POLYMORPHITES MIXTUS, QUENSTEDT sp. 1846;
  3. POLYMORPHITES JUPITER, D'ORBIGNY sp. 1850;
- Charmouthian, *valdani* zone, Robin Hood's Bay, near Whitby.

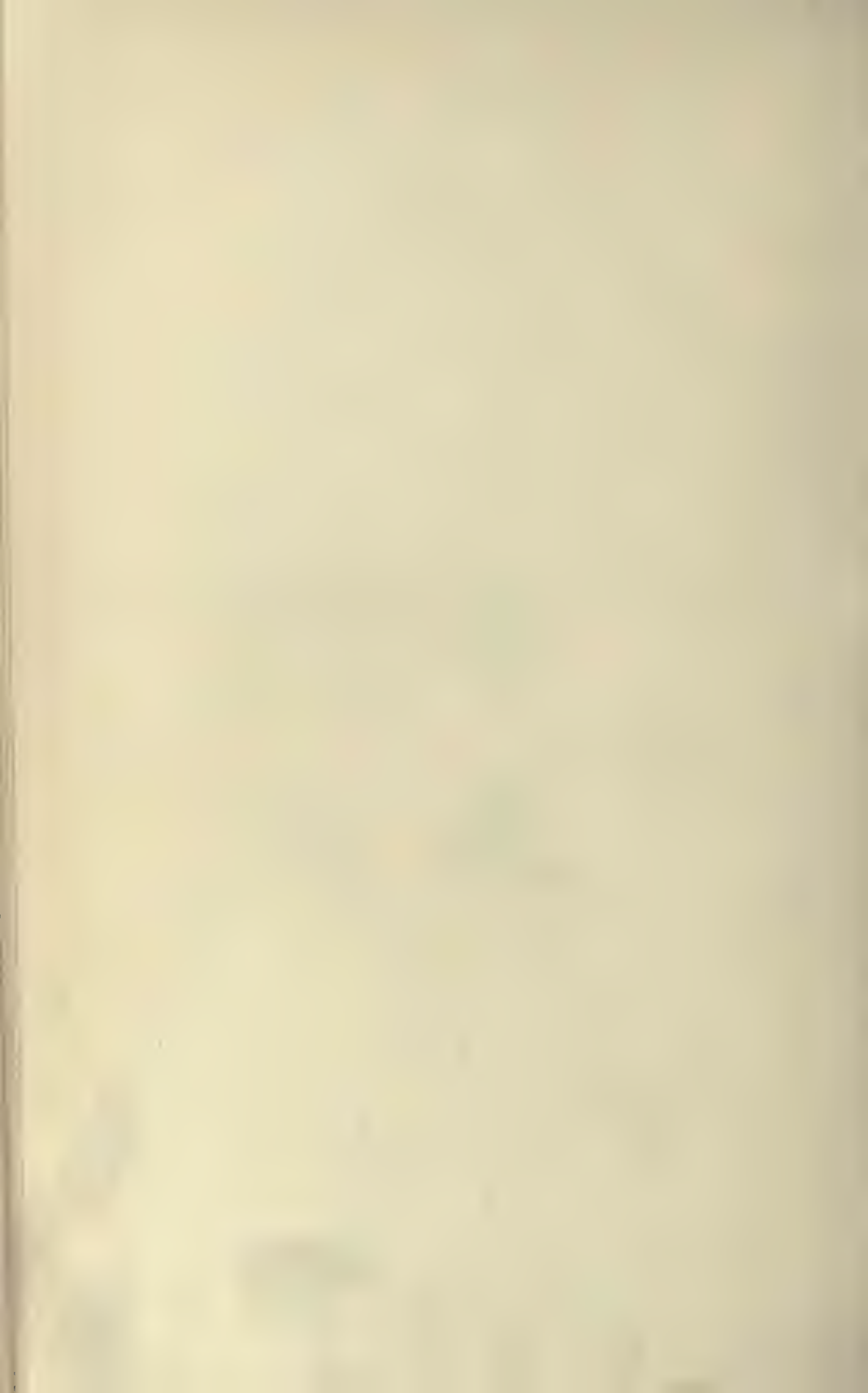




AMMONITES TRIVIALIS, SIMPSON, 1843

Whitby Museum, No. 105. Figs. 1, Side, 1a, Peripheral, 1b, Apertural views of Holotype; Figs. 2, 3, Side views of Paratypes

1. POLYMORPHITES TRIVIALIS, SIMPSON SP.
2. Polymorphites mixtus, Quenstedt sp.
3. Polymorphites jupiter, d'Orbigny sp.



*Comparable Species*

- Am. polymorphus quadratus*, Quenstedt, 1846, IV, 9; 1856, XV, 15; 1884, XXX, 32-35, XXXI, 5.  
*Am. polymorphus mixtus*, Id., IV, 10; 1856, XV, 12, 18-20; 1884, XXX, 19-27, XXXI, 3.  
*Am. polymorphus interruptus*, Id., IV, 11; 1856, XV, 17; 1884, XXX, 16-18.  
*Am. polymorphus costatus*, Id., IV, 12; 1856, XV, 13; 1884, XXX, 12-15.  
*Am. polymorphus lineatus*, Id. 1846, IV, 13.—Type (?) of  
*Am. jupiter*, d'Orbigny, 1850, p. 225.  
*Am. hybrida*; Oppel, 1853, III, 4.  
*Am. polymorphus lineatus*, Quenstedt, 1856, XV, 14; 1884, XXX, 1-6.  
*Amaltheus trivialis*; Blake, 1876, V, 6.  
*Am. polymorphus*; Quenstedt, 1884, XXX, 9-11, 28-31, XXXI, 4.

See also Haug, 1887, 115.



54. TENELLUS,

AMMONITES

ARIETITES

54. AMMONITES TENELLUS, SIMPSON  
(Plate LIV)

*Original Description*

" 178. A[mmmonites] tenellus. [M. SIMPSON, 1855, p. 97.]

[" III. Keel between two furrows. p. 90.

" *b. Furrows distinct.*" p. 93.]

" Much depressed ; volutions 5, inner ones  $\frac{3}{4}$  concealed, outer whorl less than  $\frac{1}{2}$  the diameter ; radii separated by widish spaces, straight, turn suddenly towards the aperture near the back ; striæ, or lines of growth, numerous, fine, beautifully sharp and distinct upon the keel, which they finely crenate ; keel prominent, round, relieved from the sides of the whorl by a concavity ; aperture triangular or ovate ; diameter  $2\frac{3}{4}$  inches.

" This is a more elegant species than the last [*A. impendens*, Y. & B.] ; the radii are less prominent, and the groove on the side of the keel much flatter.—L.L. ; R. H. Bay."

SIMPSON, 1884, 137, the same.

*Remarks*

Stages, conch, becoming oxycone ; periphery, 4c ; ornament, 4c-3c. The periphery is concavifastigate. The carina bears fine hair-like lines (striæ, Simpson). The greatest thickness of the whorl at aperture is 11 mm., at edge of periphery, 7 mm.

Genus, *Arietites*, Waagen, (Gen. *vi*) ; family, *Arietidæ*. The geological position is presumably about L.L. 16.

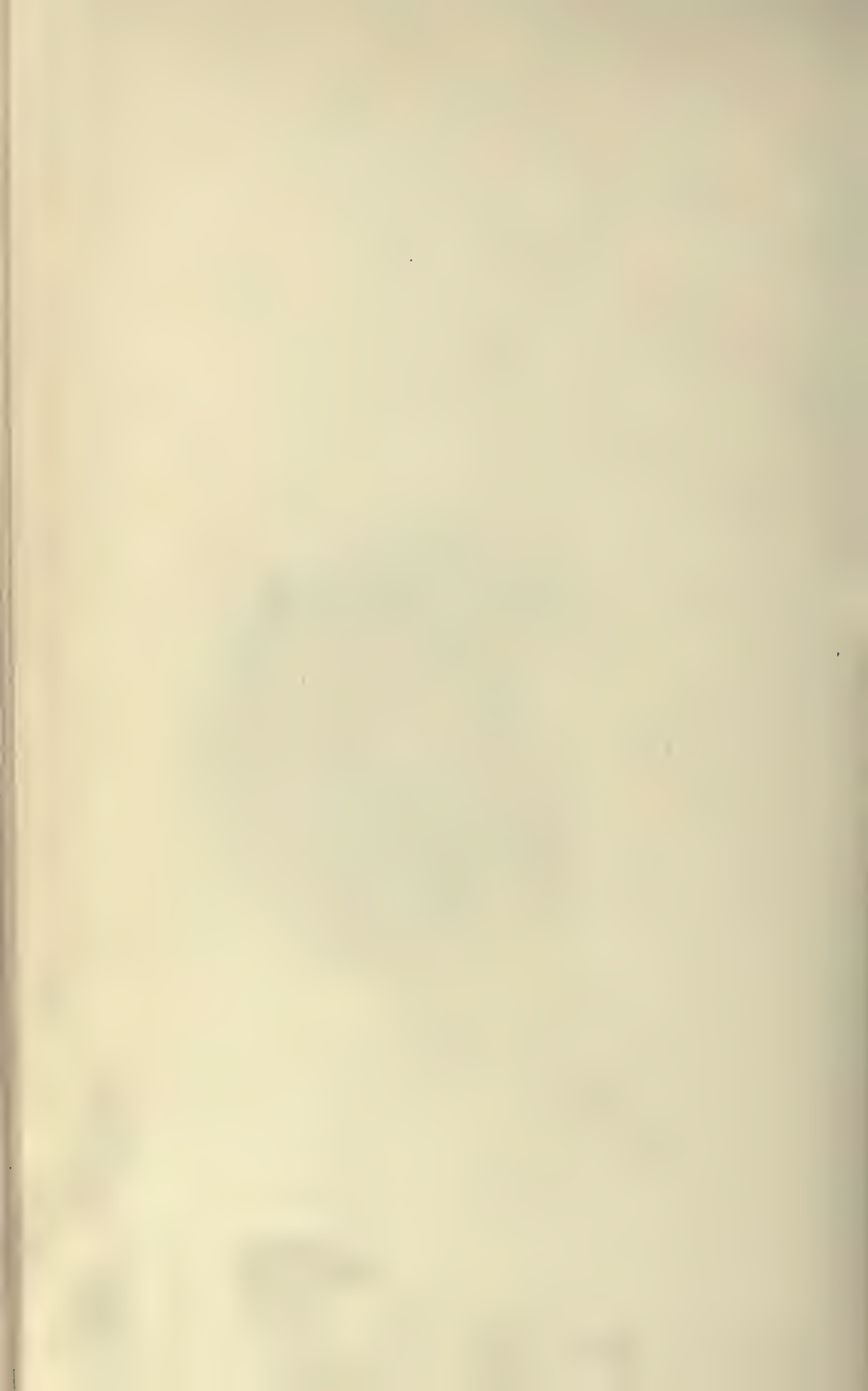
*Result*

ARIETITES TENELLUS, SIMPSON sp. 1855, Sinemurian, [*stellare* zone], Robin Hood's Bay, near Whitby.



AMMONITES TENELLUS, SIMPSON, 1855  
Whitby Museum, No. 293, Holotype. Side view

ARIETITES TENELLUS, SIMPSON SP.





*Comparable Species*

*Am. turneri*? Phillips, 1829, XIV, 14.

*Am. collenotii*, d'Orbigny, 1844, xcv, 8.

*Arietites stellaris*; Geyer, 1886, III, 6.

See also No. 35.



55. FLAVUS,

AMMONITES

OXYNOTICERAS

55. AMMONITES FLAVUS, SIMPSON  
(Plate LV)

*Original Description*

"80. A[mmonites] flavus. [M. SIMPSON, 1843, p. 43.]

["With a keel on the back.

"a. Outer whorl broad." p. 31.]

"Depressed; volutions 3 or 4, inner ones  $\frac{3}{4}$  concealed, outer whorl not  $\frac{1}{2}$  the diameter; keel obtuse; aperture ovate; diameter  $\frac{3}{4}$  inch.

"This is not quite so much depressed as the last [A. buckii], and the inner whorls diminish very little in thickness; it is quite plane, without radii or striæ; the septa are more distant than in the last, and the lobes are less serrated, and not so numerous. it is also from the lower lias at Robin Hood's Bay and has a metallic hue."

*Additional Details*

SIMPSON 1855, 86, omits "Depressed"; adds in 2nd par. after "striæ"—"the shell is cracked", and before "metallic" has "light."

In this case "the last" would refer to A. alienus, but that may be an oversight.

SIMPSON, 1884, 123, the same as 1855; p. xxi, species entered in Indurated Band 13.

*Remarks*

Stages, conch, almost oxycone; periphery. 2c; ornament, 1.

Genus, *Oxynoticeras*, Hyatt (Gen. *ii*), the species showing cunctative palingenesis, particularly as regards ornament. Family, Arietidæ, Hyatt.

*Result*

OXYNOTICERAS FLAVUM, SIMPSON sp. 1843, Sinemurian, *oxynotum* zone, Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



AMMONITES FLAVUS, SIMPSON, 1843  
Whitby Museum, No. 481, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view; both  $\times 1.5$

OXYNOTICERAS FLAVUM, SIMPSON SP.



*Comparable Species*

*Am. cultellus*, J. Buckman, 1844, XII, [5]; refig. Pal. U. 1904, 25, T2.

*Am. bourgeti*, Reynès, 1879, XLIV, 37, 38.

*Am. janus*; Id., XLIV, 1, 2.

*Aegoceras slatteri*, Wright, 1882, L, 1-5.

*Oxynoticeras oxynotum*; Geyer, 1886, IV, 24.

See also Nos. 7, 8, 36, 56.





56. LIMATUS,

AMMONITES

OXYNOTICERAS

56. AMMONITES LIMATUS, SIMPSON  
(Plate LVI)

*Original Description*

"77. A[mmunites] limatus. [M. SIMPSON, 1843, p. 41.]

["II. With a keel on the back.

"a. Outer whorl broad." p. 31.]

"This greatly resembles some varieties of the last [A. huntoni], but the foliations of the septa are much more simple."

*Additional Details*

SIMPSON, 1855, 86.—"150. A. LIMATUS, *Simp.*—This greatly resembles the last [A. flavus], but the whorls diminish more in thickness, leaving a larger umbilicus; there are also a few obsolete radii. It is entirely a cast and of a brown colour.—L.L., R.H. Bay."

SIMPSON, 1884, 123, as 1855.

*Remarks*

Stages, conch, oxycone; periphery, 3 (3c?); ornament, 2 (2c?).

There are two specimens sent as types: that with suture lines marked (Fig. 1) is of the brown colour which Simpson notes, and is, therefore, presumably his holotype; the other (Fig. 2) is a paratype or metatype. It is more rugose than the first, shows auriculoids, and has a rather larger umbilicus: perhaps it is not the same species. Both are quite immature forms.

Genus, *Oxynoticeras*, Hyatt, (Gen. *ii*); family, Arietidæ. The geological position is not stated: it is presumably L.L. 13.

*Result*

OXYNOTICERAS LIMATUM, SIMPSON sp. 1843, Sinemurian, [*oxynotum* zone], Robin Hood's Bay, near Whitby.

Fig. 2



Fig. 1

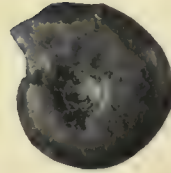


Fig. 1a



AMMONITES LIMATUS, SIMPSON, 1843  
Whitby Museum, No. 480. Fig. 1, Side view; 1a, Apertural view of  
Holotype. Fig. 2, Side view of Paratype or Metatype; all  $\times 1.5$

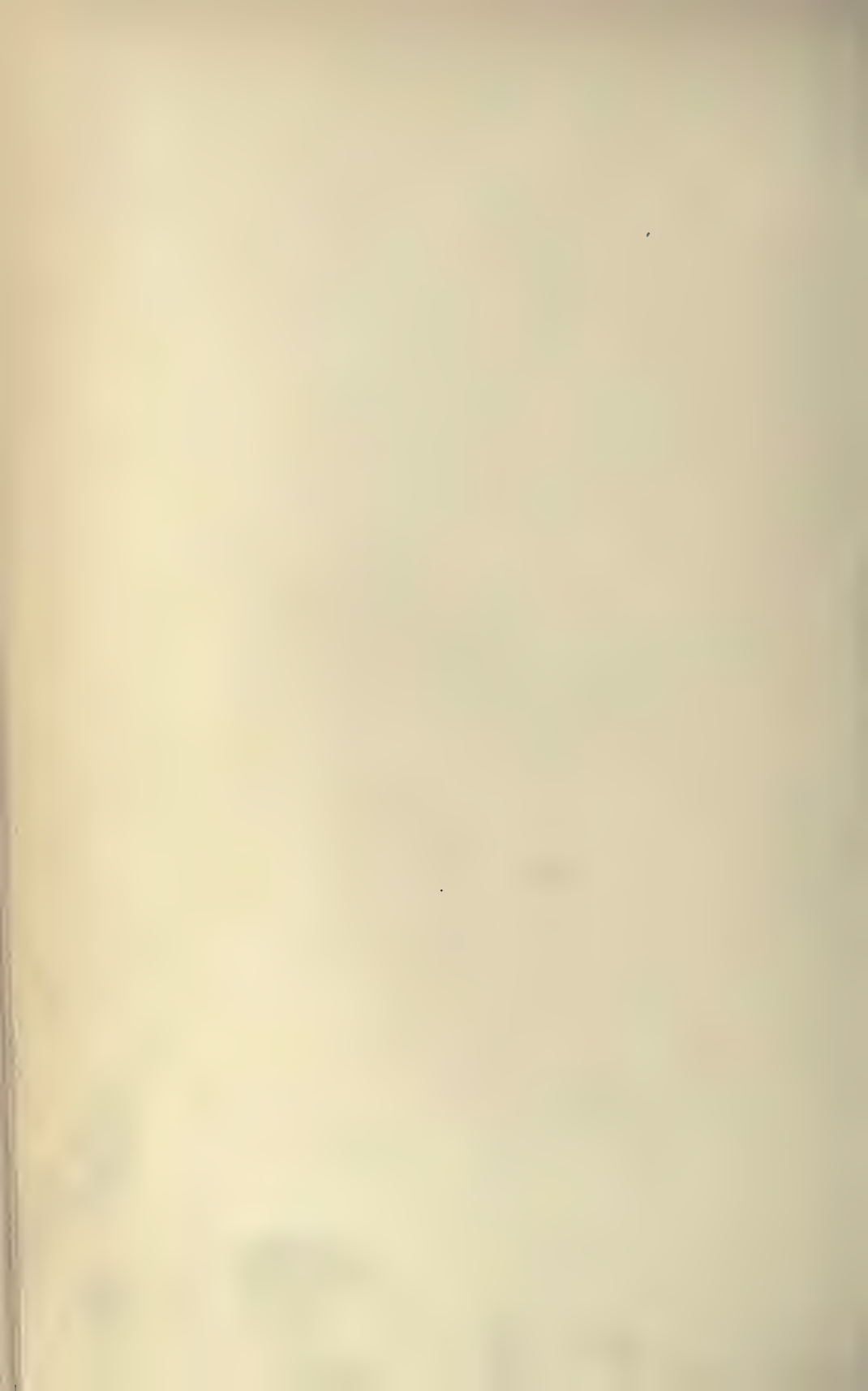
OXYNOTICERAS LIMATUM, SIMPSON SP.



*Comparable Species*

*Aegoceras slatteri*, Wright, 1882, L, 6-8.  
*Oxynoticeras* sp., Geyer, 1886, II, 22.

See also Nos. **7, 8, 36, 55.**



57. ANDREI,

AMMONITES

PORPOCERAS

## 57. AMMONITES ANDRÆI, SIMPSON

(Plate LVII)

*Original Description*

36. A[mmonites] Andræi. [M. SIMPSON, 1843, p. 23.]

[“ I. Without a dorsal keel or furrow. p. 7.

“ b. Armed with spines or distinct tubercles.” p. 22.]

“ This has nearly the same characters as A. fibulatus ; but the ribs are not in the button and loop style. Each rib has a knob near the back, then splits into two or three. It has been named after Mr. Thos. Andrew, a respectable dealer in fossils in this town.”

*Additional Details*

SIMPSON, 1855, 59.—“ 76. A. ANDRÆÆ, *Simp.*—Volutions 6 or 7, exposed, outer whorl nearly  $\frac{1}{4}$  the diameter ; radii numerous, prominent, form knobs near the outer margin of the whorls, then split into 2 or 3 on the back ; aperture subquadrate ; diameter  $2\frac{3}{4}$  inches.

“ Towards the aperture, alternate radii are introduced, without knobs, and at length the knobs become entirely obsolete.—U.L.”

SIMPSON, 1884, 91, similar.

*Remarks*

Stages, conch, serpenticone ; periphery, 1 ; ornament, 5\*.

Spite of Simpson's assertion, there is a button & loop (fibulate) pattern till about 40 mm. diameter. After that, plain tuberculate pattern. The subsequent failure of knobs is perhaps due to an injury, of which there are signs. The secondary ribs have a slight forward sweep over a flattish arched periphery.

Genus, *Porpoceras* (Gen. p. v) ; family, Dactyloidæ, Hyatt. Geological position, presumably Alum Shale.

*Result*

PORPORCERAS ANDRÆI, SIMPSON sp. 1843, Whitbian [*fibulatum* zone, near Whitby].



Fig. 2

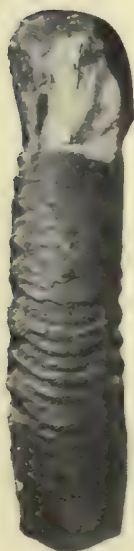
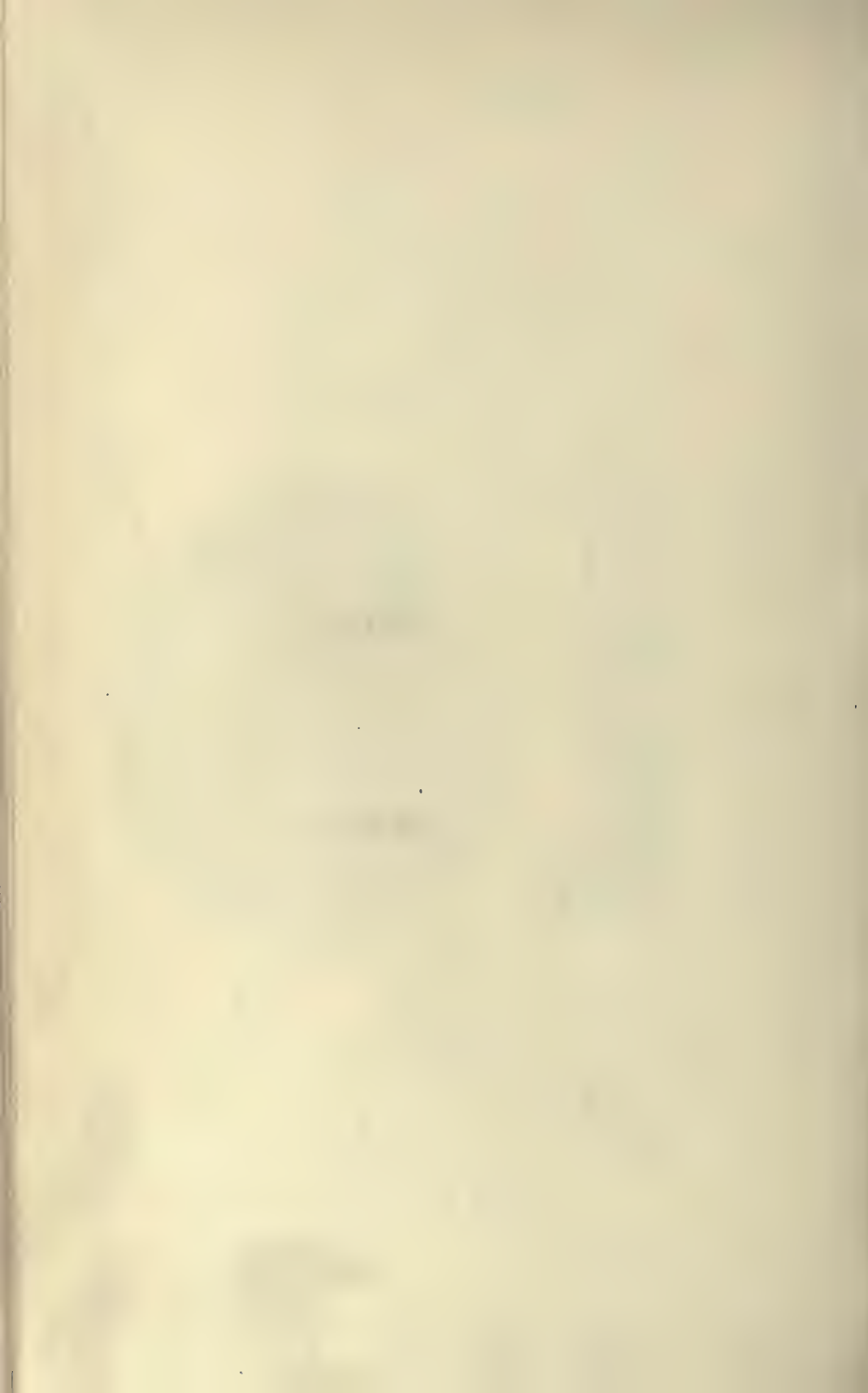


Fig. 1



AMMONITES ANDRÆI, SIMPSON, 1843  
Whitby Museum, No. 520, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

PORPOCERAS ANDRÆI, SIMPSON SP.



*Comparable Species*

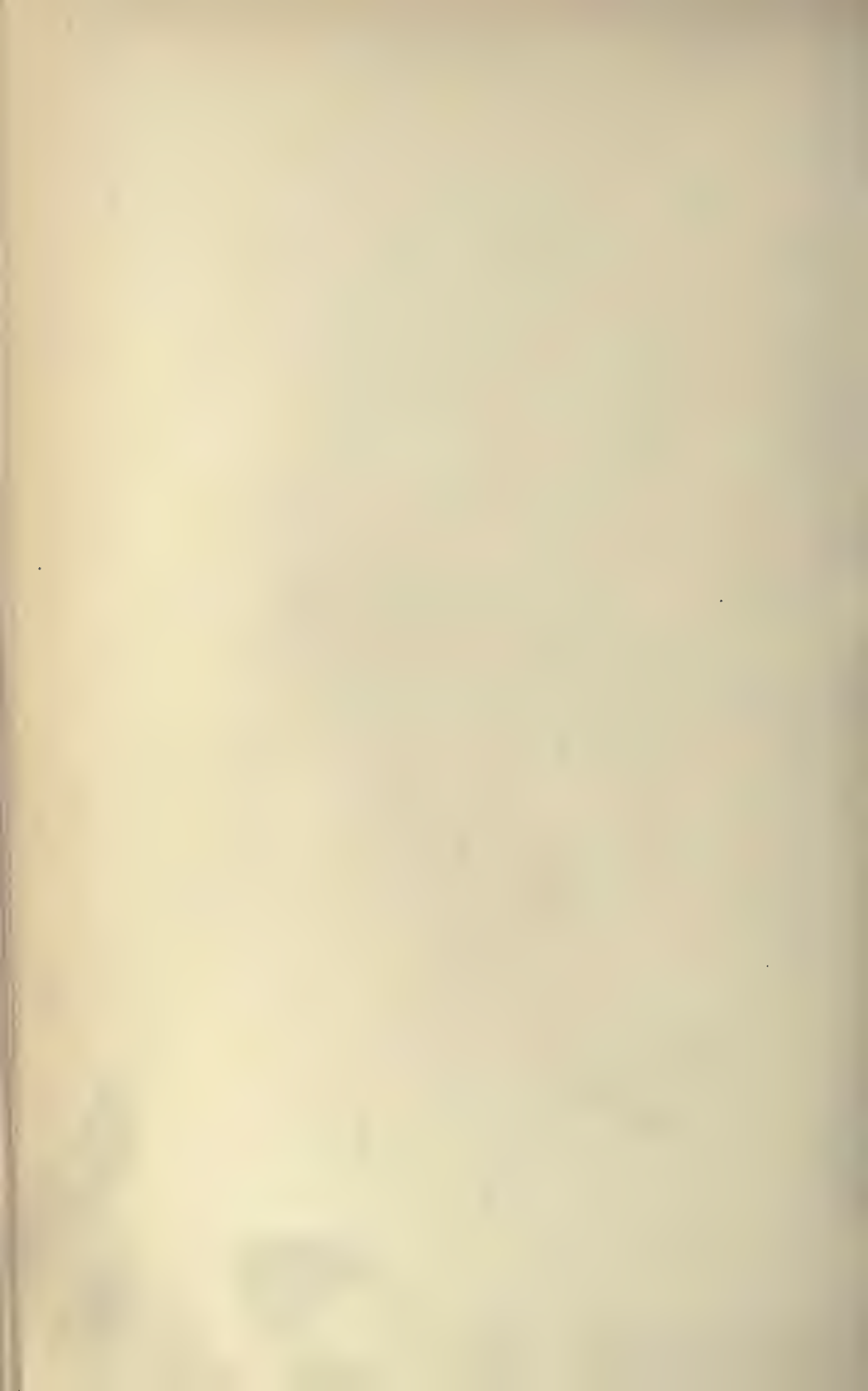
*Am. bollensis*, Zieten, 1830, XII, 3.

*Am. subarmatus*; Meneghini, 187-, XIV, 4.

*Stephanoceras fibulatum*; Wright, 1884, LXXXV, 5.

*Am. bollensis*; Quenstedt, 1885, XLVI, 13, 14.

And see Nos. **29, 50.**



58. CRASSULOSUS,

AMMONITES

DACTYLIOCERAS

## 58. AMMONITES CRASSULOSUS, SIMPSON

(Plate LVIII)

*Original Description*

63. A[mmonites] crassulosus. [M. SIMPSON, 1855, p. 55.]

["The following species, to the end of the Section, have all a family resemblance to *A. communis* :—

"Whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back." p. 50.]

"Thickish; outer whorl less than  $\frac{1}{2}$  the diameter; radii smooth, strong, prominent, distinct, separated by widish concave spaces, split in two near the back, and bend towards the aperture; aperture half of a regular ellipse; diameter 3 inches.

"This differs chiefly from the *communis* or *crassus* type by the prominence of the radii and their wider intervening spaces. The shell is thick, and the whole form gives the idea of strength. The middle is imperfect. It appears to be from the hard iron bands of the middle lias."

SIMPSON, 1884, 86, 87, the same.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 4.

Genus, presumably *Dactylioceras*, Hyatt (Gen. *v*); but uncertain owing to absence of inner whorls; family, Dactyloidæ, Hyatt. Geological position, "Middle Lias" (Simpson), presumably then, from the very top.

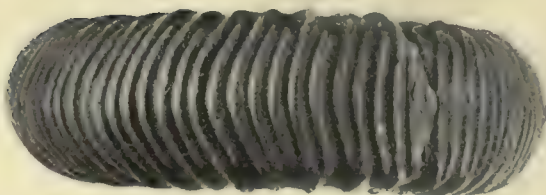
*Result*

DACTYLIOCERAS CRASSULOSUM, SIMPSON sp. 1855, Domerian, [*acutum* zone ? near Whitby].

Fig. 1



Fig. 2



AMMONITES CRASSULOSUS, SIMPSON, 1855  
Whitby Museum, No 124, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

DACTYLIOCERAS CRASSULOSUM, SIMPSON, SP.





*Comparable Species*

- Am. angulatus*, J. Sowerby, 1815, CVII, 1.  
*Am. communis*, Id., CVII, 3.  
*Am. raquinianus*, d'Orbigny, 1845, CVI.  
*Am. communis*, Id., CVIII.  
*Am. crassus*; Meneghini, 187-, XVI, 2.  
*Stephanoceras braunianum*; Wright, 1884, LXXXVI, 3, 4.

See also Nos. 31, 35, 51.



59. FONTICULUS,

AMMONITES

CÆLOCERAS



Fig. 1



Fig. 2



AMMONITES FONTICULUS, SIMPSON, 1855  
Whitby Museum, No. 496, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view



*Comparable Species*

*Am. davæi* ; d'Orbigny, 1844, LXXXI, 4, 5.

*Am. desplacei*, Id., 1845, CVII.

*Am. dayi*, Reynès, 1868, v, 7, =

*Am. acanthopsis* ; Id., p. 104.

*Am. desplacei* ; Meneghini, 187-, XVI, 5, 6.

*Stephanoceras fonticulum* ; Blake, 1876, I, 10.

*S. raquinianum* ; Wright, 1884, LXXXVII, 7, 8.

And see No. 60.





60. CROSBEYI,

AMMONITES

CÆLOCERAS

## 60. AMMONITES CROSBEYI, SIMPSON

(Plate LX)

*Original Description*

"33. A[mmmonites] crosbeyi. [M. SIMPSON, 1843, p. 22.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Thickish; volutions 4, inner ones  $\frac{1}{2}$  concealed: radii numerous, slender, annular, generally split in two in passing over the back; inner margin of the whorls slightly rounded, and overhanging the next; aperture one-half of a regular ellipse; diameter 3 inches.

"This may be distinguished from the last [*A. semicelatus*], by the inner margin of the whorls overhanging the succeeding ones, as well as by its thickness, and the more rapid diminution of the whorls. It is at present a rare shell, and was discovered by Thomas Crosby, who has long been a diligent collector of fossils, and is intimately acquainted with every stratum of the neighbourhood."

*Additional Details*

SIMPSON, 1855, 58, second paragraph omitted. Description placed under heading:—

"The following species, to the end of the section, have all a family resemblance to *A. communis*:—Whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back." p. 50.

SIMPSON, 1884, 90, the same.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament 4 (4c?).

Ribs septate, sometimes single, mostly bifurcate, sometimes secondaries intercalated. No fibulation visible; but inner whorls obscure. Outer whorl beginning to narrow and contract.

Genus, *Cœloceras*, Hyatt (Gen. *iv*); family, Dactyloidæ, Hyatt. Geological position may be *lilli* zone, if Wright's species, quoted on opposite page, is the young state: the locality and stratum given for that indicate *lilli* zone.

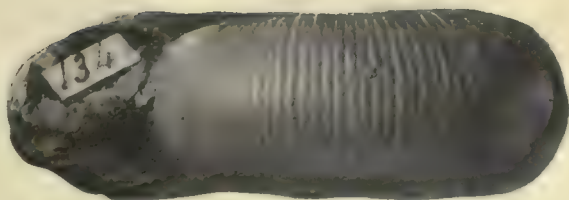
*Result*

CÆLOCERAS CROSBEYI, SIMPSON sp. 1843, Whitbian, [*lilli* zone? near Whitby].

Fig. 1



Fig. 2



AMMONITES CROSBEYI, SIMPSON, 1843  
Whitby Museum, No. 134, Holotype  
Fig. 1, Side view; Fig. 2, Apertural view

CÆLOCERAS CROSBEYI, SIMPSON SP.



*Comparable Species*

*Am. puteolus*, Simpson, 1855, p. 58.

*Am. acanthoides*, Reynès, 1868, 1[bis], 3.

*Am. oppeli*, Id., 11, 2, =

*Am. alberti*, Id., p. 93.

*Am. crassus*; Dumortier, 1874, (IV), xxvii, 8, 9.

*Stephanoceras crassum*; Blake, 1876, viii, 5.

*S. raquinianum*; Wright, 1884, LXXXVI, 5-7, [the young stage of

*Am. crosbeyi*?]; LXXXVII, 1, 2, [= *Am. puteolus*, Simpson?]

And see No. 59.



# YORKSHIRE TYPE AMMONITES

EDITED BY

S. S. BUCKMAN, F.G.S.,

AUTHOR OF

"A MONOGRAPH OF INFERIOR OOLITE AMMONITES, 1887-1907"

The Original descriptions reprinted, and illustrated by figures of the types,  
reproduced from photographs mainly by

J. W. TUTCHER

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LONDON:

WILLIAM WESLEY AND SON,

28 ESSEX STREET, STRAND

1912

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## Genus, AETOMOCERAS, HYATT

1900, Ceph.; Eastman-Zittel, Pal. I, 575.

"*Aetomoceras*, gen. nov. Type *A. (Amm.) scipionianum*, d'Orb. sp." [Ceph. Jur. II, 7, 8].

## Genus, CALOCERAS, HYATT

1870, Reversions; Proc. Boston N.H.Soc., XIV, 22, 29.

"*Caloceras torus*," p. 22. "A new genus of which *Caloceras torus* and *tortilis* are types," p. 29. This is the whole original description. More fully dealt with in Gen. Ariet., 1889, 136; but no type selected. Said there to be "transitional from *Psiloceras* to the true Arietidæ." But *Psiloceras* is a degenerate (smooth) derivative of a *Caloceras* stock, and the oblique inner lobes of *Psiloceras* and *Caloceras* are not found in the Arietidæ, but in the Deroceratidæ: to the latter *Caloceras* might lead. It leads to pseudo-arietan forms with keel (*Alsatites*): these have very oblique inner lobes.

Advisable to select as type *A. torus*, d'Orbigny.

## Result

Genus, CALOCERAS, HYATT, 1870. Genolectotype, *Am. torus*, d'Orbigny, Ceph. Jur. LIII.

## Genus, ALSATITES, HAUG

1894, Amm. Perm.; Bull. Soc. Géol. France, (3) XXII, 411.

"ALSATITES n. gen., type: *Amm. liasicus* d'Orb." [Céph. Jur., XLVIII].

## Genus, PHYLLOCERAS, SUESS

1865, Ueber Amm.; Sitz. Nat.-wiss. Cl. Wiener Akad., LII, 76.

"*Phylloceras* . . *Phyll. heterophyllum* ist die typische form." [J. Sowerby, Min. Conch., CCLXVI].

## Genus, RHACOCERAS, AGASSIZ-HYATT

1867, Foss. Ceph; Bull. Mus. Comp. Zool., V, 86, 97.

One of the five genera selected (named) by Agassiz (Hyatt, 71). The type is indicated by the species which bears his name: "*Rhacoceras heterophyllum* L. Agassiz" (p. 97), with two references "*Amm. heterophyllus* Sow. *Amm. heterophyllus* d'Orb. The type of the genus is therefore the same as for *Phylloceras*, and the name cannot be used, as in this work No. 16, for the *loscombei* series: Hyatt's *Tragophylloceras* covers that.

## Genus, TRAGOPHYLLOCERAS, HYATT

1900, Ceph.; Eastman-Zittel, Pal. I, 568.

"*Tragophylloceras*, gen. nov. Type *T. (Phyl) heterophyllus numismalis*, Quenst. sp. " This includes several forms : there may be selected Amm. Schwäb. Jura, xxxvii, 11. Pompeckj, 1893, 14, placed this, and others as *Phylloceras numismale*, Quenstedt sp. The types of that, however, are Quenstedt, Ceph., 1846, vi, 4, 5a, b, 5c, of which it is advisable to choose 5a,b as type of *Tragophylloceras numismale*, Quenstedt sp.

## Result

Genus, TRAGOPHYLLOCERAS, HYATT, 1900. Genolectotype, *Am. heterophyllus numismalis*, Quenstedt, Amm. Schwäb. xxxvii, 11, only, = *Tragoph. typicum*, nom. nov.

## Genus, PHRICODOCERAS, HYATT

1900, Ceph.; Eastman-Zittel, Pal. I, 587.

"*Phricodoceras*, gen. nov. Type *P. (Amm.) Taylora*, d'Orb. sp." [Céph. Jur. cii, 3—5]. Here are two species. Advisable to select figs. 3, 4.

## Result

Genus, PHRICODOCERAS, HYATT, 1900. Genolectotype, *Am. taylora*; d'Orbigny, cii, 3, 4.

## Genus, UPTONIA, S. BUCKMAN

1898, Jur. Time; Quart. Journ. Geol. Soc. LIV, 453.

"Type : *Uptonia Jamesoni* (J. de C. Sow.)." But the identification is general, not particular. Advisable to fix *Aegoceras jamesoni*; Wright, Mon. 1882, li, 1, 2, as type.

## Genus, PALTOPLEUROCERAS, S. BUCKMAN

1898, Jur. Time; Quart. Journ. Geol. Soc. LIV, 453.

"Type : *Paltoptleuroceras spinatum* (Bruguière)." But the identification is general, not particular; and interpretations of Bruguière's species are various. Advisable to adopt for type of genus d'Orbigny's reading, whether it is exactly Bruguière's species or not.

## Result

Genus, PALTOPLEUROCERAS, S. BUCKMAN, 1898. Genolectotype, *Am. spinatus*, Bruguière, d'Orbigny's interpretation, Céph. Jur. lii.

61. PUTEOLUS,

AMMONITES

CÆLOCERAS



*Comparable Species*

*Ammonites raquinianus*, d'Orbigny, 1845, cvi, 4, 5.

*Stephanoceras raquinianum*; B. Thompson, 1885, [1], 5, p. 309.

And see Nos. **59, 60.**



62. CRASSIUSCULOSUS

AMMONITES

DACTYLIOCERAS

62. AMMONITES CRASSIUSCULOSUS, SIMPSON  
(Plate LXII)

*Original Description*

"68. A[mmonites] crassiusculosus. [M. SIMPSON, 1855, p. 57.]

["The following species, to the end of the Section, have all a family resemblance to *A. communis* :—

"Whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back." p. 50.]

"Thickish; volutions 6 or 7, outer whorl  $\frac{1}{4}$  the diameter, neatly rounded; radii strong, prominent, obtuse, split in two on the back; aperture transverse; diameter  $1\frac{3}{4}$  inch

"This is a very neat and slender species or variety, intermediate between *A. crassus* and *A. crassulus*. It is from the jet-rock of the lias. There is another in the same beds, which resembles it in the slenderness of the whorls, but the aperture is circular."

SIMPSON, 1884, 88, 89, the same.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 4 (4c?). Whorls depressed, sides rounded, periphery flatly arched; umbilicus open, convexigradate; ornament very regular, costation bifurcate, secondary ribs with slight forward bend on periphery.

Genus, *Dactylioceras*, Hyatt; family Dactyloidea.

*Result*

DACTYLIOCERAS CRASSIUSCULOSUM, SIMPSON sp. 1855, Whitbian, exaratum zone, near Whitby.



Fig. 1



Fig. 2



AMMONITES CRASSIUSCULOSUS, SIMPSON, 1855  
Whitby Museum, No. 137, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

DACTYLIOCERAS CRASSIUSCULOSUM, SIMPSON SP.



*Comparable Species*

*Am. communis*, J. Sowerby, 1815, cvii, 2.

*Am. crassus* ; Quenstedt, 1840, xiii, 10.

*Am. raquinianus* ; Chapuis & Dewalque, 1855, vii, 1.

And see Nos. **31, 35, 51, 58.**



63. ANNULIFERUS,

AMMONITES

PERONOCERAS

63. AMMONITES ANNULIFERUS, SIMPSON  
(Plate LXIII)

*Original Description*

" 53. A[mmonites] annuliferus. [M. SIMPSON, 1855, p. 50.]

[" The following species, to the end of the Section, have all a family resemblance to *A. communis* :—

" Whorls narrow, exposed, with numerous slender, annular ribs, which generally split in two on the back." p. 50.]

" Radii obtuse, on the outer whorl separated by narrow grooves, split in two, then pass straight over the back, where they are nearly obsolete ; aperture an ellipse, indented by the succeeding whorl."

SIMPSON, 1884, 81, the same.

*Remarks*

Stages, conch, serpenticone ; periphery, 1 ; ornament, 5 to 4c.

The whorls are rounded ; the periphery arched ; the umbilicus open with gibbous steps ; the ornament is a tuberculate stage up to about 17 mm. diameter, with occasional fibulation ; after that, ordinary bifurcate costation, costæ septate.

The species shews catagenetic ornament of the *Dactylioceras* pattern following after fibulate tuberculation. The species is therefore a degenerate derivative of *Peronoceras* or *Porpoceras*, the fineness of the ornament perhaps indicates the former. Therefore genus *Peronoceras* ? Hyatt, (Gen. v) ; family Dactyloidæ. Nothing is said about its geological position, but it is presumably from the Alum Shale.

*Result*

PERONOCERAS ? ANNULIFERUM, SIMPSON sp. 1855, Whitbian, [*fibulatum* zone ? near Whitby].

Fig. 1



Fig. 2



AMMONITES ANNULIFERUS, SIMPSON, 1855  
Whitby Museum, No. 492, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

PERONOCERAS ANNULIFERUM, SIMPSON SP.





*Comparable Species*

*Am. (Stephanoceras) desplacei*; Meneghini, 187-, xvi, 7, 8, types of  
*Coeloceras annulatifforme*, Bonarelli, 1899, p. 212.  
*Coeloceras marioni*, Lissajous, 1906, III, 4.

And see No. 30.



64. ANGUIFORMIS,  
AMMONITES  
DEROCERAS

64. AMMONITES ANGUIFORMIS, SIMPSON  
(Plate LXIV)

*Original Description*

"26. A[mmonites] anguiformis. [M. SIMPSON, 1843, p. 17.]

["I. Without a dorsal keel or furrow.

"a. No spines." p. 7.]

"Depressed, volutions 5 or 6, exposed; radii straight, very obtuse, nearly obsolete on the back and inner whorls; faintly striated; aperture circular; diameter  $1\frac{7}{10}$  inch.

"I have seen only one specimen of this shell, and am ignorant of its locality; but I have little doubt that it is from the upper lias. It may be placed near *A. fimbriatus*, though it differs materially from it in the slenderness of the outer whorls. The shell has been partially removed, and upon the cast, I see near the back, at the termination of the radii, small flat places, as if a row of knobs had been rubbed off."

*Additional Details*

SIMPSON, 1855, 41, 42; p. 41, omits "Depressed"; for "faintly striated" reads "transverse striae, irregular, faint." P. 42, for 2nd par. "The inner whorls of this species are very slender and delicate, but the outer whorl is rather coarse. Many specimens have a row of small tubercles on the outer margin of the whorls, but this is not a constant character. With a strong magnifier may be seen faint longitudinal striae, in places merely fimbriating, or dotting the transverse striae."

SIMPSON, 1884, 70, 71. At end of first par. has (p. 71) "L.L., ironstone bands, R. H. Bay"; near end of second, after "fimbriating" omits the comma.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 5\*.

The flat spaces noted by SIMPSON (1843) are the marks of the septa which were at the bases of the spinæ. The inner whorls seem to have been smooth up to about 16 mm. diameter (cunctative palingenesis); then are ribs and small tubercles; while the outer whorls carry ribs and irregular septituberculus marks. The specimen is poor. Its diameter is  $1\frac{7}{8}$  inch (48 mm.).

Genus, *Deroceras*, Hyatt, (Gen. *iv*); family Deroceratidæ. Geological position, probably L.L. y or z, unless it had been derived.

*Result*

DEROCERAS ANGUIFORME, SIMPSON sp. 1843, Charmouthian, [*armatum* zone], Robin Hood's Bay, near Whitby.

Fig. 1



Fig. 2



AMMONITES ANGUIFORMIS, SIMPSON, 1843  
Whitby Museum, No. 86, Holotype  
Fig. 1, Side view ; Fig. 2, Peripheral view

DEROCERAS ANGUIFORME, SIMPSON SP.



*Comparable Species*

*Coeloceras* sp. indet., Geyer, 1886, IV, 20.

And see No. 44.





65. OWENENSIS,  
AMMONITES  
DEROCFRAS

65. AMMONITES OWENENSIS, SIMPSON  
(Plate LXV)

*Original Description*

"41. A[mmonites] Owenensis. [M. SIMPSON, 1843. pp. 25, 26.]

["I. Without a dorsal keel or furrow. p. 7.

"b. Armed with spines or distinct tubercles." p. 22.]

"Depressed; volutions 5 or 6, exposed, outer whorl more than  $\frac{1}{3}$  the diameter; radii rather distant, straight, distinct, slender, armed with a row of tubercles near the outer margin, obsolete on the back, and on the inner whorls; aperture round; diameter 1 inch."

"In the form of the whorls this species resembles *A. fimbriatus*, and the size of the aperture is comparatively much greater than [p. 26] in any other of the armed varieties. The cast is smooth and without any appearance of striæ; I suppose it to be from the lower lias; but on this I am not able to speak with certainty.

"I have taken the liberty of naming this ammonite after Professor Owen, whose works on Saurians, and whose talents as a naturalist have placed him far above any praise that can be given him here."

*Additional Details*

SIMPSON, 1855, 64, omits "Depressed"; has instead of 2nd and 3rd paragraphs "The whorls diminish rather rapidly; and in some specimens the radii are very distant. The cast is very smooth and neat.—L.L.; R. H. Bay."

SIMPSON, 1884, 64, as 1855.

*Remarks*

Stages, conch, serpenticone; periphery, 1; ornament, 1, 5\*.

Whorls obtrapeziform; sides divergent, flattened; periphery flatly arched, faintly lineate (striate); greatest thickness at edge of periphery, where there is a coronet of spines. Smooth stage to about 12 mm. diameter, then distant, not strong costæ, each ending in a spine.

The specimen is quite immature.

Genus, *Deroceras*, Hyatt, 1867; family, *Deroceratidæ*, Hyatt. The geological position is presumably L.L.y.

*Result*

DEROCERAS OWENENSE, SIMPSON sp. 1843, Charmouthian, [*armatum* zone], Robin Hood's Bay, near Whitby.

Fig. 1

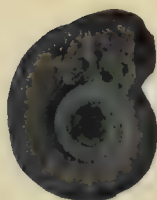


Fig. 2.



AMMONITES OWENENSIS, SIMPSON, 1843  
Whitby Museum, No. 470, Holotype  
Fig. 1, Side view ; Fig. 2, Apertural view

DEROCERAS OWENENSE, SIMPSON SP.



*Comparable Species*

See Nos. **44, 64.**



66. SIMPSONI,

AMMONITES

AETOMOCERAS

## 66. AMMONITES SIMPSONI. BEAN-SIMPSON

(Plates LXVIA, B)

*Original Description*

"68. A[MMONITES] SIMPSONI, BEAN'S MSS. [M. SIMPSON, 1843, pp. 37, 38.]

["II. With a keel on the back.

"a. Outer whorl broad." p. 31.]

"Very much depressed; volutions 4 or 5, inner ones  $\frac{7}{8}$  concealed, outer whorl  $\frac{1}{2}$  the diameter, sides undulating, inner margin rounded; radii nearly obsolete on the outer whorl, bend towards the aperture; striæ [p. 38] diverging, numerous, and delicate; keel sharp, prominent; aperture acutely triangular; diameter 6 inches.

"This ammonite, which Mr. Bean has been pleased to call *A. Simpsoni*, is from the lower lias shale at Robin Hood's Bay; the whorls swell out in thickness towards the inner margin, which is finely rounded, whilst the part near the keel is slightly concave; in the older specimens the radii are scarcely discernible.

*Additional Details*

SIMPSON, 1855, 79, omits "very" at beginning; 1884, 115, adds at end of 1st par. "L.L., 15, R. H. Bay."

*Remarks*

Stages, conch, oxycone; periphery, 2c; ornament, 1c. The radial curve can just be followed in places: on the side it is straight, on the periphery much projected.

The periphery is very sharp; on each side of it is a somewhat broad depressed area, so that the exterior is acutely concavifastigate. Inside the depressed area the whorls become gibbous, with greatest thickness about  $\frac{1}{3}$ th from inner margin. The whorl-section is thus acutely galeatiform. The umbilical edge is steeply rounded, but not defined.

The specimen has suffered from crushing on one side.

The suture-lines are not clearly exposed. The type shows only one prominent accessory lobe in the external saddle. A topotype about 190 mm. diameter (Jermyn Street Museum, No. 24,362), just commencing body chamber, shows at 166 mm. diameter two such lobes.

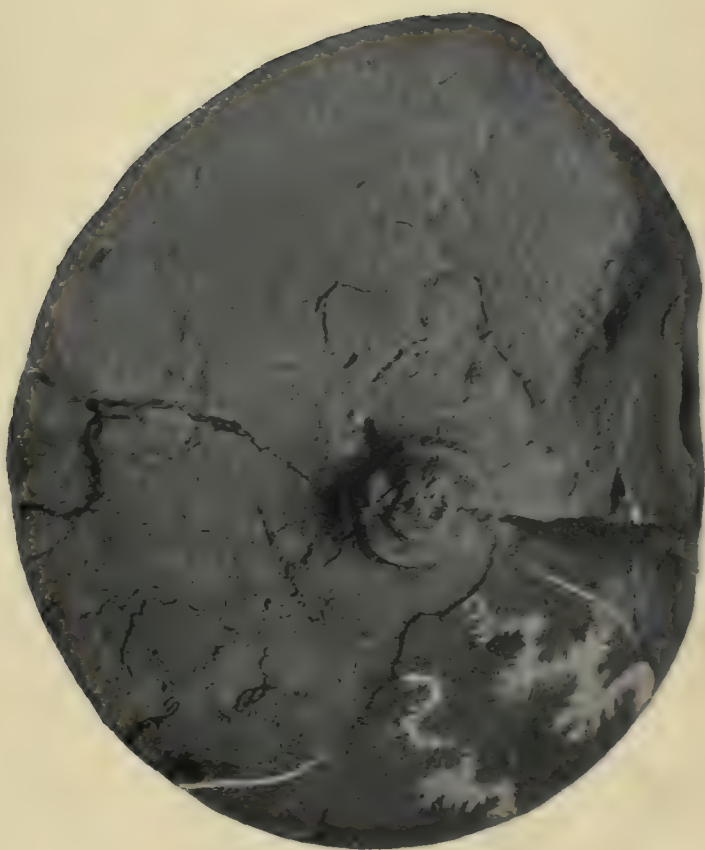
The galeatiform whorl-section, the somewhat simple suture-line and the loss of ornament while the umbilicus is, for an oxycone, comparatively open, suggest that this species is a degenerate development of *Am. colesi*. J. Buckman, and *Am. scipionianus*, d'Orbigny, and is not an *Oxynticeras*.

Genus, *Aetomoceras*, Hyatt, (Gen. *vii*): family Arietidæ, Hyatt.

*Result*

AETOMOCERAS SIMPSONI, BEAN-SIMPSON sp. 1843, Sinemurian, *oxynotum* zone, Robin Hood's Bay, near Whitby.





AMMONITES SIMPSONI, BEAN-SIMPSON, 1843  
Whitby Museum, No. 813, Holotype  
Side view,  $\times 0.8$

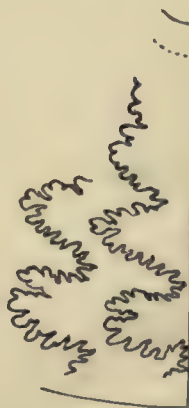
AETOMOCERAS SIMPSONI, BEAN-SIMPSON SP.



Fig. 1



Fig. 2



AMMONITES SIMPSONI, BEAN-SIMPSON, 1843  
Whitby Museum, No. 813, Holotype

Fig. 1, Apertural view,  $\times 0.8$ ; Fig. 2, Approximate delineation of  
two septal margins, nat. size

AETOMOCERAS SIMPSONI, BEAN-SIMPSON SP.



*Comparable Species*

*Am. oxynotus*; Dumortier, 1867, (II), xxxiii.

*Am. insigillatus*, Dumortier & Fontannes, 1876, 1.

*Amaltheus simpsoni*; Blake, 1876, VIII, 4.

*Am. simpsoni*; Reynès, 1879, XLIX, 1-7.

*Amaltheus simpsoni*; Wright, 1881, XLVII, 4-7.

And see Pompeckj, 1906, 226, 282, 292; also Nos. **7, 8, 36, 55, 56.**



67, DENOTATUS,  
AMMONITES  
ARIETITES

## 67. AMMONITES DENOTATUS, SIMPSON

(Plates LXVII A, B)

*Original Description*

"122. A[mmmonites] denotatus. [M. SIMPSON, 1855, p. 76.]

["II. With a keel on the back.

"a. Outer whorl broad." p. 72.]

"Volutions 5 or 6, inner whorls  $\frac{3}{4}$  concealed, outer whorl less than  $\frac{1}{2}$  the diameter, inner margin rounded, outer part depressed; radii straight for about  $\frac{1}{4}$  the width of the whorl, then suddenly bend towards the aperture, where they become obsolete, terminate abruptly at a flattish groove, which relieves the sides of the whorl from the keel; which is prominent, sharp, entire; aperture ovate; diameter 6 in.—L.L.; Mr. Leckenby's Col."

*Additional Details*

SIMPSON, 1884, III, adds after name "*Simp.* Pal. pl. vi., f. 1. [Wright, Mon. Lias Amm.; Pal. Soc. 1878].

*Remarks*

Stages, conch, oxycone; periphery, 4c; ornament, 4c, rapidly failing.

Genus, *Arietites*, Waagen (Gen. vi); family, Arietidae. Geological position,—BLAKE, 1876, 290 (*Ar. collenoti*), says "middle portion of *oxynotus* zone," which he uses in a wide sense = *obtusum-raricostatum* zones. Therefore about Simpson's L.L. 16 may be the bed.

The type passed with the Leckenby collection to the Woodwardian (now Sedgwick) Museum, Cambridge, and was kindly lent by Prof. Hughes for this work. It was figured by Wright, 1881, xxii B, as *Arietites Collenottii*, but with ribs depicted far too strong. He gives the locality as Robin Hood's Bay (1881, p. 306).

The differences between this species and *A. fowleri*, J. Buckman, 1844, are not great: the present species has a slightly smaller umbilicus and rather stronger, rather more distant ribs. The difference of ribbing may be partly a matter of age: the two types are of different sizes and not easily compared.

The present type possesses only the outer whorl and three parts of the next: the rest of the umbilicus is wanting—it has been made up and scored with the chisel.

*Result*

ARIETITES DENOTATUS, SIMPSON sp. 1855, Sinemurian, [*stellare* zone], Robin Hood's Bay.





AMMONITES DENOTATUS, SIMPSON, 1855  
Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype  
Side view,  $\times 0.85$

ARIETITES DENOTATUS, SIMPSON SP.



Fig. 1



Fig. 2



AMMONITES DENOTATUS, SIMPSON, 1855  
Sedgwick Museum, Cambridge (Leckenby Coll.), Holotype  
Fig. 1, Peripheral view ; Fig. 2, Apertural view ; both  $\times 0.85$

ARIETITES DENOTATUS, BEAN-SIMPSON SP.



*Comparable Species*

See Nos. **35, 54.**



## APPENDIX





## ADDENDA

In Table VI, p. xvi, insert "pedicum" between "struckmanni" and "striatulum."

Page 23d, add to "Species of Amaltheus" :—

1849. *A. calcar*, Brown sp., xx\*, 4.

1851. *A. actæonoides*, Savi & Meneghini sp., p. 76, No. 10 (teste Canavari, 1882, xx, 17, p. 140).

1912. *A. evolutus*, nom. nov., founded on *Am. amaltheus depressus*, Quenstedt, Amm. Schwäb., xli, 19.

## CORRIGENDA

Page *iv*, line 10 up, for "cratermubilicus" read "craterumbilicus."

P. 11c, for "*compactilie*" read "*compactilis*."

P. 16b, line 14 up, for "L.L.w" Simpson presumably meant "L.L.w." This would indicate *valdani* zone; line 7 up, for "*Rhacoceras*, etc." read "*Tragophylloceras* Hyatt, 1900 (Gen. p. *viii*)"; under Result for "*Rhacoceras*" read "*Tragophylloceras*,"; for "*capricornum* zone?" read "*valdani* zone?"

Plate XVI, for "*Rhacoceras*" read "*Tragophylloceras*."

P. 24d, line 3 up, for "XIII, 9," read "XIII, 1."

Plate XXVII for "Peripheral" read "Apertural."

Plate XXXVII B, for "nautiliformis" read "nautiliformis."

P. 37c, instead of last line read "*Aegoceras (Liparoceras) bechei*; Parona, 1897, xi, 3."

P. 43b, top line, for "25" read "43."

P. 44c, line 5 up, for "*Am. armatus*," read "*Aegoceras armatum*."

## MEASUREMENT TABLE

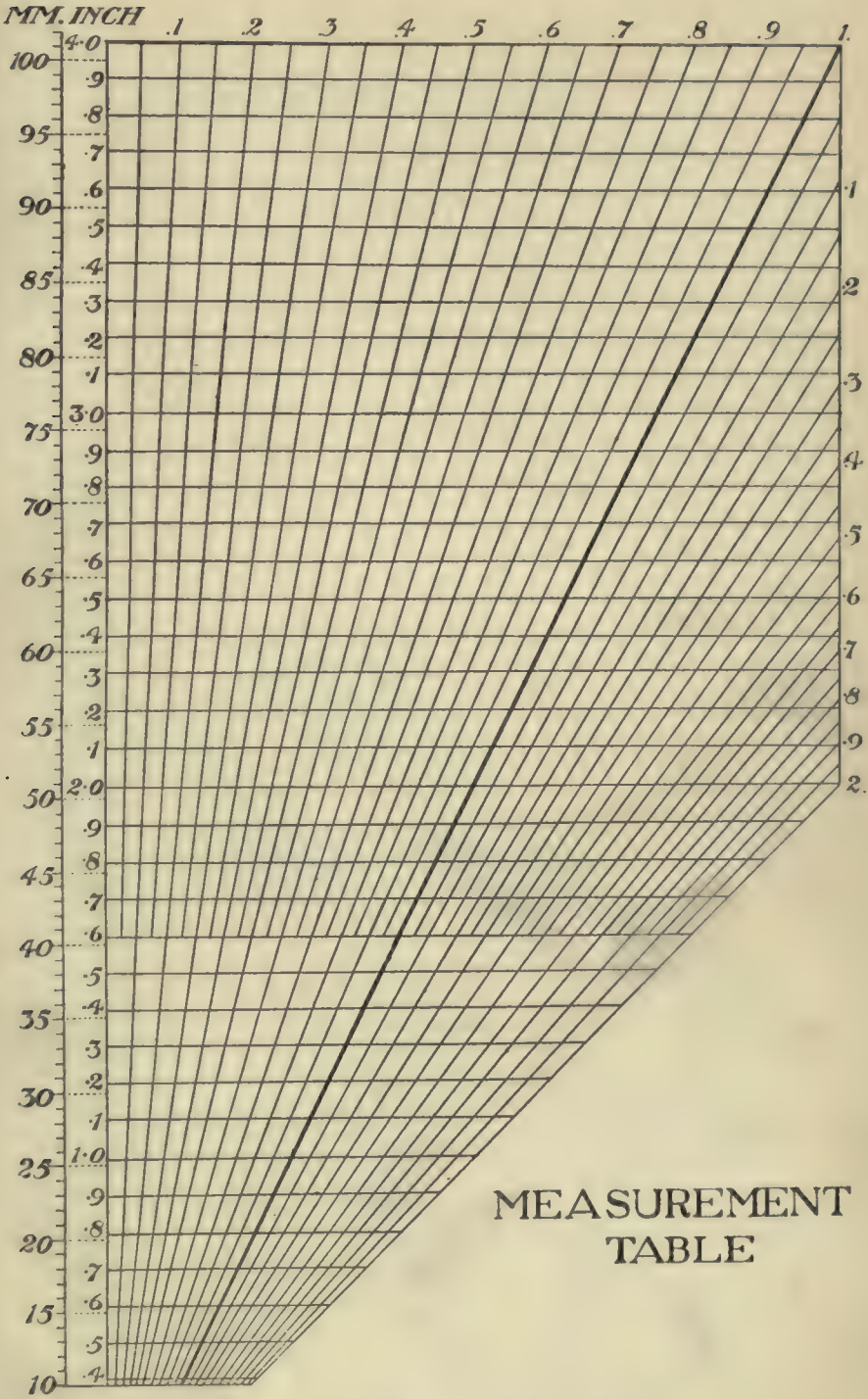
(Appendix Table I)

Measure the fossil with compasses. Find the horizontal line which most nearly coincides with this measure, using the thick diagonal as the right hand boundary. The figures on the left give the actual size of the fossil in inches and tenths, or in millimetres.

Measure the picture of the fossil from the same points. Place the measure on the same horizontal line. If it fall short of the diagonal, the figures on the top give the amount of reduction. If it fall beyond the diagonal the figures on the right give the amount of enlargement.

When a specimen has been depicted enlarged or reduced, its actual proportions can be ascertained by using for the right diagonal the number which corresponds with the amount of difference stated.

For ascertaining the proportion of height or thickness of whorl, or size of umbilicus to the diameter, radius, or other base-line, measure their amounts upon the horizontal line which coincides with length of base-line. The diagonals will give the percentages. For large fossils halve, quarter, or reduce the length of base-line until a workable limit be reached ; then halve, quarter, or similarly reduce the other measures or the results.





## POSTSCRIPT

The death of Mr. Thomas Newbitt, F.G.S., which occurred suddenly on June 15, 1912, casts a shadow over this work. As Honorary Curator of Whitby Museum, in succession to Martin Simpson, he took a very particular interest in this publication. In the five years since the plans for it were first formed, Mr. Newbitt laboured long and carefully in regard to the specimens required—so much that the majority of the types of Simpson and of Young & Bird have been in the Editor's hands. Still, much remained to be done, and Mr. Newbitt's labours, though necessarily unobtrusive, were none the less invaluable: his kind assistance will be very greatly missed. Sympathy with his widow and his two nieces is joined with this appreciation of his services.

Eight parts of this publication are completed with the present issue, illustrating with 80 plates 67 species, of which the majority, it may be claimed, were known to science only by name, and hardly by that. These eight parts are now presented with title-page and index in form for binding as Vol. I. A measurement table, designed by Mr. Tutchter, for ascertaining enlargement, reduction and proportions, with directions for its use, is added in an Appendix.

Cordial thanks are offered to the Subscribers for their kind support, and to all those who have assisted with advice, with information, with loans of specimens, for these or future parts; also to reviewers for kindly notices, and to those who have otherwise helped to make the work known.

The desirability of illustrating types of Yorkshire authors other than those mentioned in the Introduction has been brought to the Editor's notice, on the ground of making the work as completely informative as possible. On similar ground has been urged the desirability ~~of~~ illustrating types, not of Yorkshire, having special bearing on the systematic arrangement of Yorkshire species or strata. Agreement with these views is confessed: time and the continued support of Subscribers may enable them to be carried out, but the original design must, in the main, have precedence.

Any limitation of the work to Lias Ammonites was not intended: such limitation in the present volume is due solely to practical considerations. Oolitic species will be illustrated as opportunity offers; for some named by Young & Bird are particularly important.

Information as to the whereabouts of Yorkshire types will be welcomed. Information as to the whereabouts of copies of Simpson's 1843 work will be interesting. At present, the only copies known to the Editor are in the British Museum, the Library of the Yorkshire Philosophical Society, York (the copy very kindly lent for the purpose of this work), and the Library of the Royal Technical College, Glasgow, a copy with author's corrections (reported by Prof. Daniel Burns). Many well-known Libraries lack the book.

8/



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Buckman, Sydney Savory  
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